Massachusetts Burn Injury Reporting System

2001 Annual Report

Publication Number: **18315-74-350-11/02-DFS**
Approved by Philmore Anderson III, State Purchasing Agent

Stephen D. Coan, State Fire Marshal
Commonwealth of Massachusetts • Department of Fire Services
Post Office Box 1025 State Road • Stow, Massachusetts 01775
Telephone (978) 567-3300 • Facsimile (978) 567-3199

Table of Contents

Executive Summary

In 2001, the seventeenth full year of the Massachusetts Burn Injury Reporting System (M-BIRS), 51 acute care hospitals and other health care facilities reported 354 victims of burns. M-BIRS was established in the Department of Public Safety in 1984 as a tool to help fire service and law enforcement personnel identify arsonists that may have been burned while setting fires. M-BIRS, along with the Office of the State Fire Marshal, was carried over to the newly created Department of Fire Services in 1996. It remains a joint program of the Department of Fire Services and the Massachusetts Department of Public Health. The "Burn Registry" also provides valuable data on the nature of the burn problem in the Commonwealth.

Statutory Authority for M-BIRS in MGL 112, Section 12A
According to Massachusetts General Law (MGL) Chapter 112, Section 12A, the treatment of all burn injuries extending over 5% or more of a person's body surface area must be reported immediately to the State Fire Marshal.

All burn reports received by the Office of the State Fire Marshal are reviewed for possible suspicious circumstances. Burns from gasoline, on the hands and arms or other unusual scenarios are referred for further investigation.

M-BIRS Has Two Main Purposes — Identifying Arsonists and Burn Prevention
Data collected by the Massachusetts Burn Injury Reporting System is used in several ways. Investigators use the data to determine if an arsonist was treated for a burn that resulted from an attempt to illegally burn a building or vehicle. If these burns are not reported promptly, arsonists may continue to light fires that threaten life and property. Our data has also been used to identify problems that need to be addressed by public education or regulation or development of appropriate intervention strategies. We need to know what type of activity injures whom, if the injuries are seasonal and how old the victims are to develop and implement effective prevention programs. We appreciate the efforts of the many dedicated doctors, nurses and clerical personnel who report the burn injuries promptly and completely. They make the program work.

Scalds Caused 40% of Reported Burn Injuries
Scalds have been the leading cause of burn injuries for the past seventeen years. Spilled hot beverages (43%) caused more scalds and more burn injuries than any other cause. This restores the trend of the past sixteen years that was only interrupted in 1999 when hot cooking liquids was the leading cause by one percentage point over hot beverages. Hot tap water (24%) and cooking liquids (17%) scalds were the second and third leading causes of scald injuries in 2001. Cooking grease (7%) is also a leading cause of scald burns. These injuries, combined with 23% of flame burns occurring in the kitchen, makes the kitchen the place where burn injuries are most likely to take place. Since we must cook every day, we must learn to do so safely.

Scalds were the leading cause of burn injuries to all age groups except those in the 10 to 14, 35 to 44 and over 65 age brackets where flame burns were the leading cause.

Keep Hot Liquids Away from Babies and Preschoolers
Young children were the most frequent victims of scald burns. According to the 2000 U.S. Census, children under five years old comprised 6% of the Massachusetts population. However, 62, or 42%, of the 143 scald victims were under five years old. Children under five years of age were seven times more likely to be scalded. Children one-year old or younger are at even greater risk, accounting for the majority of the scald victims under age five. Hot beverages posed the greatest risk to young children this year, but hot tap water and hot cooking liquids were also the causes of many scalds to pre-schoolers.

Set Hot Water Heaters at 125° F or Lower
Hot tap water is also a danger to very young children. It takes only two seconds of exposure to water at 150°F to cause a third degree burn. Hot water heaters should be set to temperatures of 125° F or lower. (Massachusetts state law states that the temperature must be set between 110°F and 130°F.) Parents should never leave a baby or toddler alone in a bath. Young children like to turn knobs and use levers. They may turn on the hot water when a parent is distracted.

Flame Burns Were the Second Largest Cause of Burn Injuries
Flame burns were the second highest cause of burn injuries in 2001 accounting for 20% of the burn injuries in 2001. A flame burn is when the fire is confined to the victim or the victim's clothing. When a wider area burns, the cause of the injury is considered a fire.

Clothing Ignitions Involved in Over One-Quarter of Flame Burns; Seniors at Risk
Clothing ignitions were involved in 20, or 28%, of the flame burn injuries in 2001. Ten of these injuries were to men and ten to women. Clothing ignitions were a significant factor in the burn injuries to older adults (people over 65). Ten victims, for whom clothing ignitions were a factor, were over the age of 65.

Some age groups are at more risk than others for particular types of burn injuries because the activities they engage in are often age-related. For a more detailed look at causes of burn injuries by age group, please look at the section that begins on page 30.

14% of Burns Work-Related
Hospitals reported that 14% of the burn victims were burned while working, up from the 11% in reported in 2000, and down from the 17% in 1999. Over four-fifths, 84%, of the people burned while working were male.

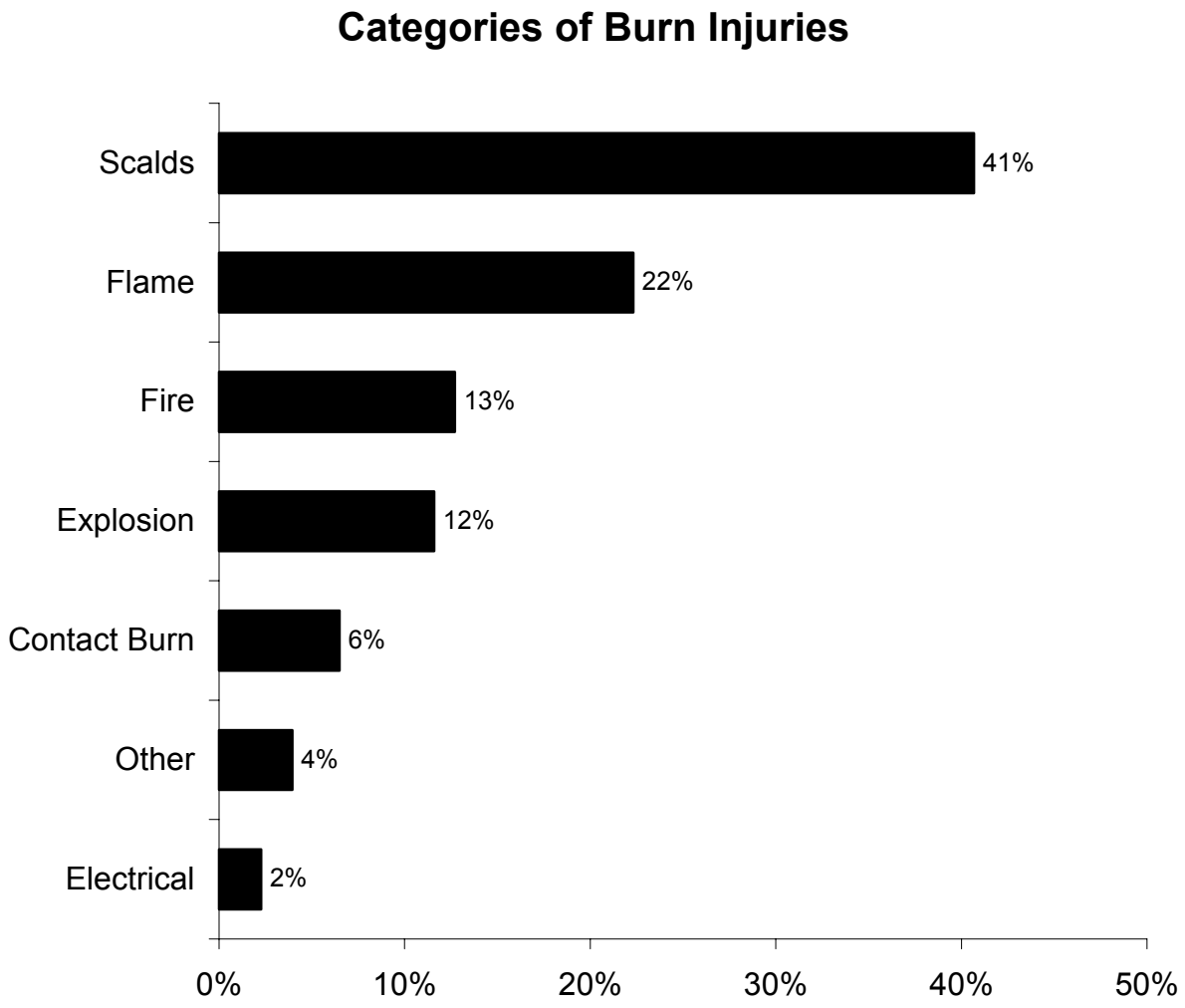
The percentages of the population in each age group were calculated using data from the 2000 Census from the U.S. Census Bureau.

Painful, disfiguring and expensive burn injuries exact a tremendous toll from their victims, their families and society. The statistics in this report illustrate the need for more burn prevention education and indicate to whom specific safety messages should be targeted.

State Fire Marshal Stephen D. Coan invites health and medical professionals, classroom and community educators, day care teachers and elder service workers to join with him in making the Commonwealth safer from burn injuries.

Causes of Burn Injuries

In this report, we look at burn injuries in two different ways. In the first section, we look at the type of incident that caused the burn. Was the burn caused by a fire, a flame, a scald or something else? A burn is said to result from a flame when the fire is confined to the victim or the victim's clothing. When a wider area burns, the injury is considered to result from fire.

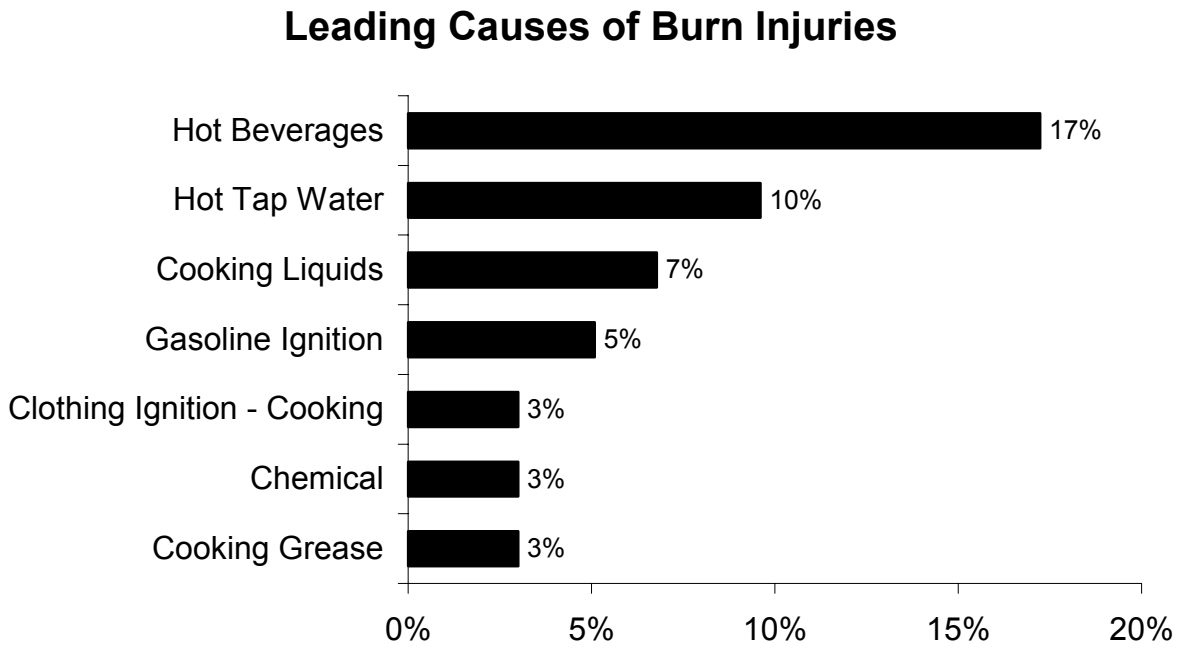


We also look at more specific causes such as hot beverage scalds or incidents involving gasoline.

Type of Incidents Causing Burn Injuries

Nearly Half of All Burn Victims Never Come Near a Flame
Scalds from hot liquids, cooking grease and steam caused 40% of the 354 burn injuries reported in 2001. Flames from burning clothing, bedding or similar objects caused 20% of the burns. Sixteen percent (16%) were caused by fires; 10% were caused by explosions; and 5% were caused by contact with hot objects. Electrical incidents such as electrocutions, flashburns[1] and explosions caused 2% of the burns. Five percent (5%) of the reported burns in 2001 had other causes, such as chemical burns or sunburns.

Look at Specific Causes and Equipment to Develop Prevention Strategies
To develop effective burn prevention policies and programs, we must first look at the specific items or behaviors that caused the burns. Seventeen percent (17%) of the 354 burn injuries reported in 2001 were scalds from hot beverages. Hot tap water caused 10% of the burn injuries. Seven percent (7%) of the burns were caused by hot cooking liquids. Gasoline ignitions caused 5% of the reported burn injuries. Chemical burns accounted for 3% of the burns reported in 2001. Cooking grease and clothing ignitions while cooking each accounted for 3% of the burn injuries in 2001. For more information, please refer to the table *Specific Causes of Burn Injuries* in the Appendix.

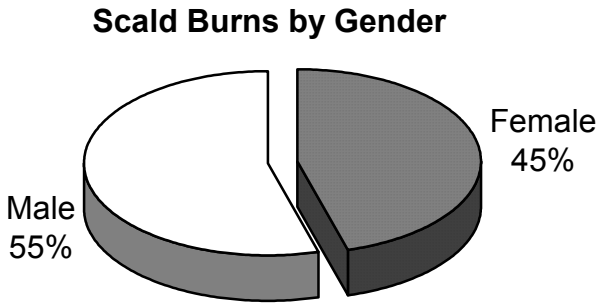


[1] A flashburn is a burn caused by short-term exposure to super-heated air generally from an explosion; there is no direct contact with flame.

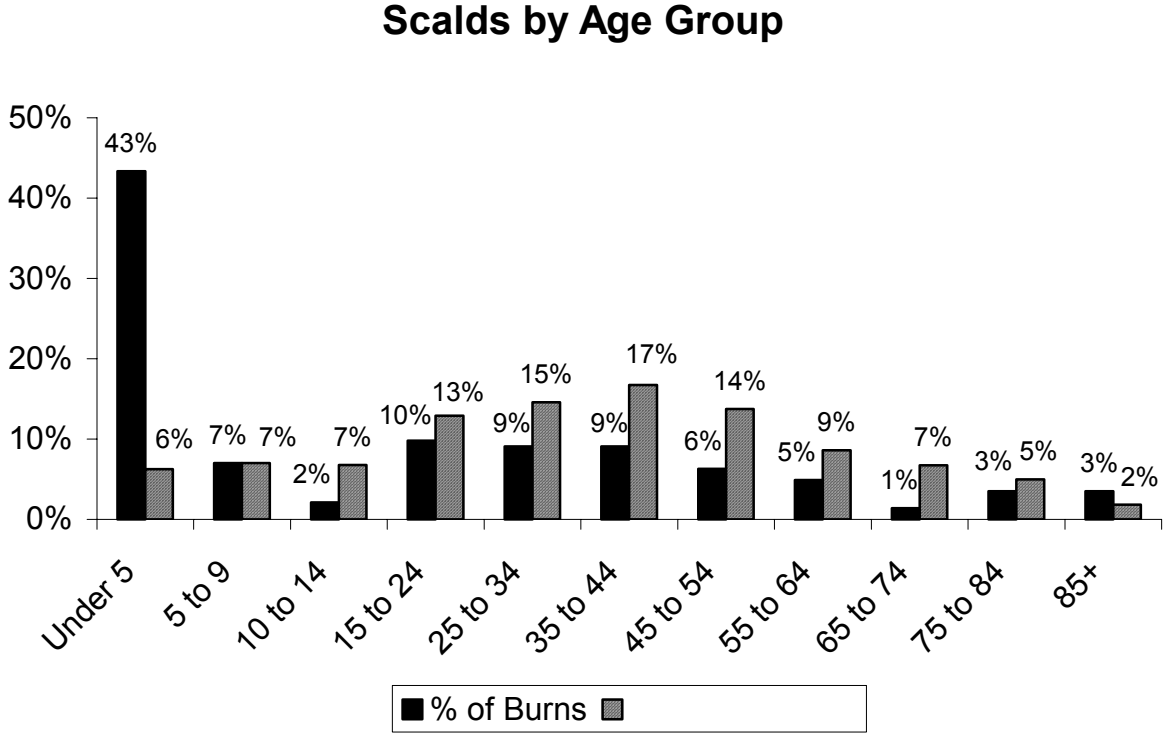
Burn Injuries Caused by Scalds

Scalds Caused 40% of All Burns
Scalds have been the leading cause of burn injuries every year since the inception of M-BIRS. One hundred forty-three (143), or 40%, of the 354 reported burns were hot scalds. Thirteen (13), or 9% of the 143 scalds occurred while the victim was working.

Seventy-eight (78), or 55%, of the 143 scald victims were male and sixty-five (65), or 45% were female.



Children Under 5 Years Old Were Most at Risk for Scald Burns
Young children were the most frequent victims of scald burns. According to the 2000 U.S. Census, children under the age of five years comprised 6% of the Massachusetts population.

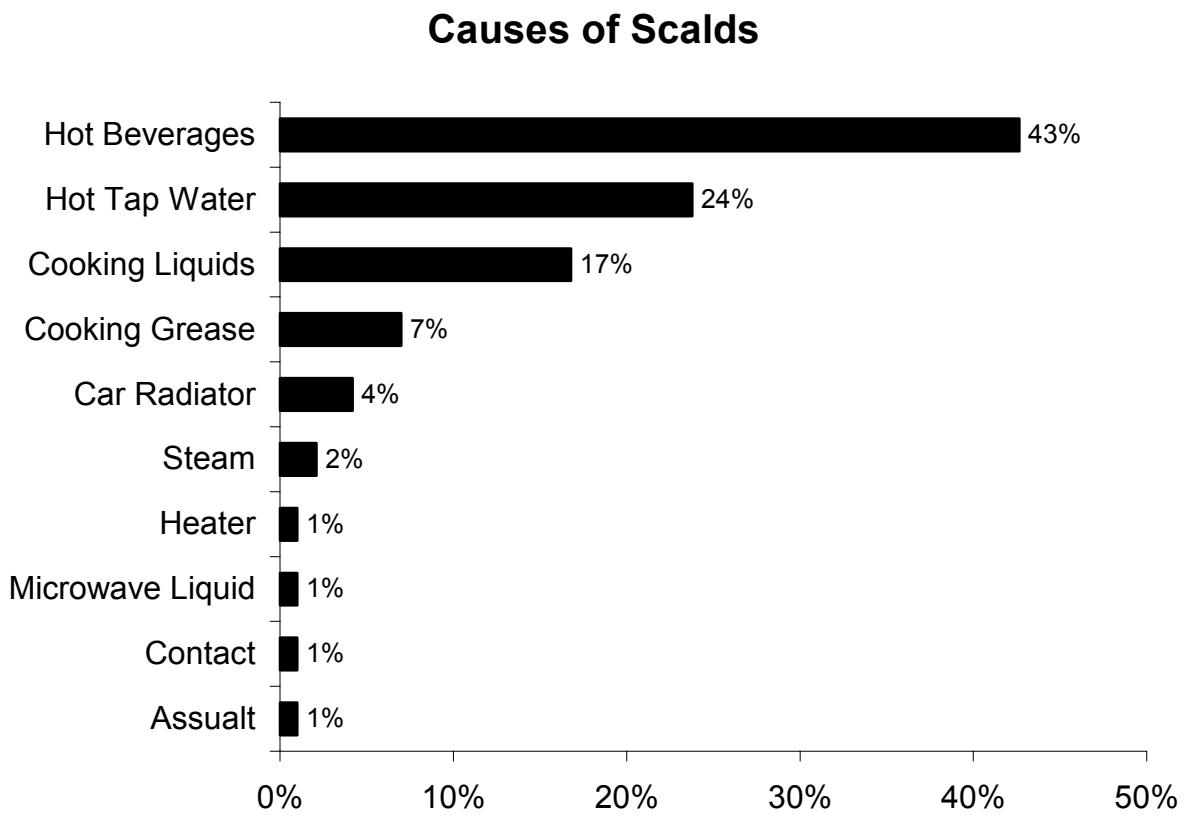


However that same age group accounted for almost half, some 43%, of all scald burns in 2001. Forty-six, or 32%, were infants one year old or younger. Children aged five to nine accounted for 7%, while children aged ten to fourteen accounted for 2% of these injuries.

Many adults also suffered burns from scalds. Ten percent (10%), were between 15 and 24 years old; 9% were between 25 and 34; another 9% were between 35 and 44 years of age; 6% were between 45 and 54; 5% were between 55 and 64; 1% were between 65 and 74; 4% were between 75 and 84 and the last 3% were over 85 years old. When the shaded bar of the graph representing the percent of scald burns is higher than the striped bar representing percent of population, higher than expected risk at this type of injury exists. Only pre-schoolers were scalded at a disproportionate rate.

Hot Beverages Caused 43% of All Scald Burns

Spilled hot beverages caused more scalds and more burn injuries than any other cause. This restores the trend of the past ten years that was only interrupted last year when hot cooking liquids was the leading cause by one percentage point over hot beverages. Forty-three percent (43%), of the 143 scald burns were caused by hot beverages. Twenty-four percent (24%) were caused by hot tap water. Hot cooking liquids was third, accounting for 17% of all scald burns. Seven percent (7%) were caused by hot cooking grease. The improper opening of hot car radiators was the cause for some 4% of these injuries. This is an increase of one injury over the number of scald burns caused by the improper opening of car radiators from the past year. Only

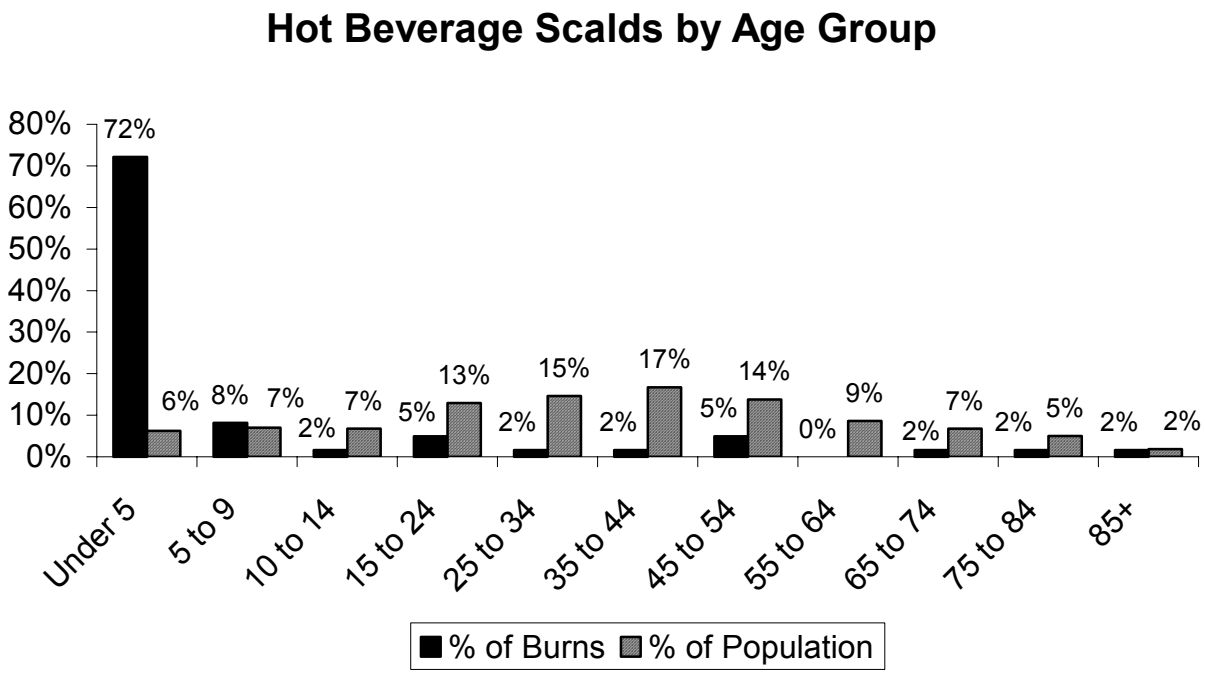


2% were caused by steam. A heater, a microwaved liquid, gasoline, an assault, and contact with an unspecified substance were each the source in 1% of the reported scald burn injuries in 2001.

Hot Beverages

Hot Beverages Caused 43% of All Scalds
Sixty-one (61), or 43%, of the 143 scald burns were caused by hot beverages. These 61 burns accounted for 17% of the 354 burn injuries reported in 2001. Except for 1999, hot beverages have been the leading cause of scald burns since the inception of M-BIRS in 1984.

Fifty-seven percent (57%) of the 61 hot beverage scald victims were male and 43% were female. Hot beverages scalded only one person while she was working.



Almost 3/4 of the Hot Beverage Scald Victims Were Under 5
Seventy-two percent (72%) of 61 hot beverage scald victims of known age were less than five years of age. Children under five years old were ten times more likely to be scalded by a hot beverage. Thirty-one (31), or 51%, were one-year old or younger. In 2001, 40% of the victims of hot beverage scalds were less than five years old.

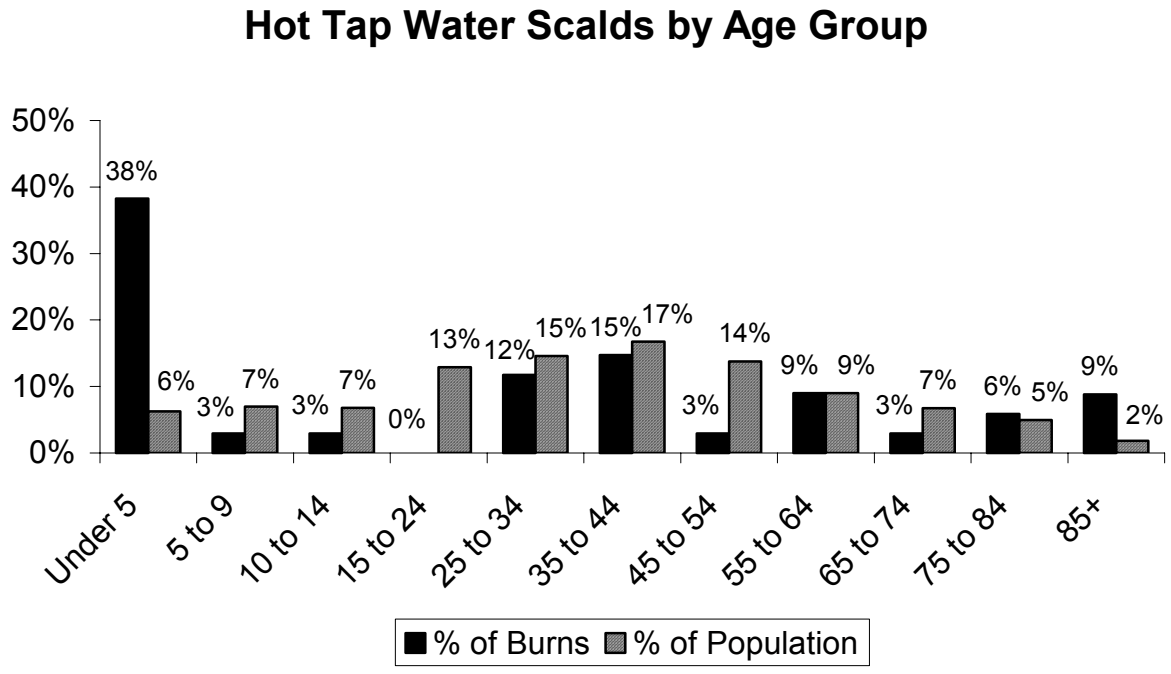
Eight percent (8%) of the hot beverage scald victims were between five and nine years old; 2% were between 10 and 14 years old; 5% were between 15 and 24; 2% were between 25 and 34; another 2% were between 35 and 44; 5% were between 45 and 54; there were no reported scalds

for the age group between 55 and 64; 2% were between 65 and 74; 2% were between 75 and 84 years of age and the last 2% were over 85 years of age.

Hot Tap Water

Hot Tap Water Caused 1/4 of All Scalds
Excessively hot tap water caused 34, or 24%, of the 143 scald burns and 10% of the 354 total burn injuries reported to M-BIRS in 2001. Hot water heaters should be set to temperatures of 125º Fahrenheit or less. Massachusetts law states that the temperature must be set between 110º and 130º F and most dishwashers have coils to boost their internal water temperature.

Fifty-six percent (56%) of victims were female while the other 44% were male. One of the 34 victims was scalded during work-related activities.



38% of Tap Water Scald Victims Were Under the Age of 5
Thirty-eight percent (38%) of the 34 hot tap water scald victims of known age were less than five years old. Some were very young infants placed in water that was too hot for their sensitive skin. Other children were interested in exploring their environment and turned on faucets. Adults may prepare a safe bath, but a child may turn on the hot water if left alone for a moment or two.

At 155º F it takes only one second to sustain a third degree burn. At 130º F it takes thirty seconds. At 120º F it can take a full five minutes to sustain a third degree burn.[2]

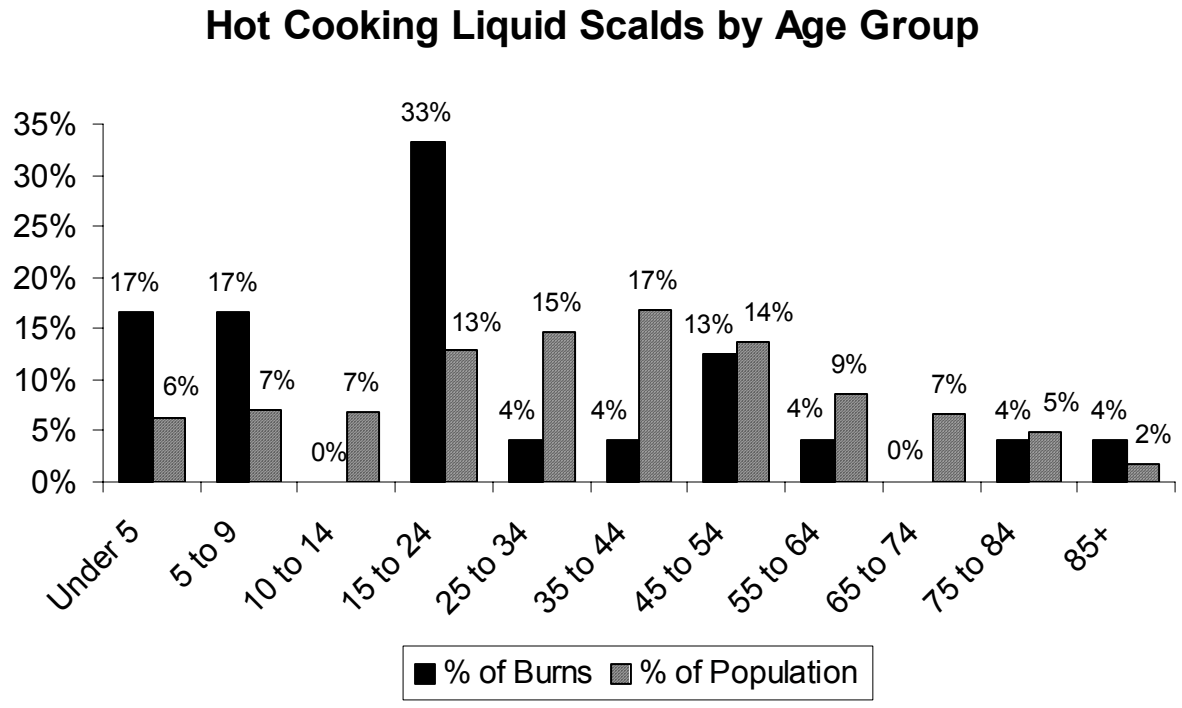
Massachusetts state law requires that the temperature for hot water heaters should be set between 110º and 130º F. It is important for homeowners to make sure their own water heaters are set in the appropriate range.

Three percent (3%) of the tap water victims were between the ages of five and nine; another 3% were between 10 and 14 years old; there were no hot tap water scalds for the age group between 15 and 24 years of age; 12% were between 25 and 34; 15% were between 35 and 44; 3% were between 45 and 54; 9% were between 55 and 64; 3% were between 65 and 74; 6% were in the range between 75 and 84 years old; and 9% of hot tap water scald victims were over the age of 85.

Hot Cooking Liquids

Hot Cooking Liquids Caused 17% of Scalds, 7% of All Burns
Hot cooking liquids caused 24, or 17%, of the 143 scald burns and 7% of the 354 burn injuries reported in 2001. Fifty percent (50%) of the victims were female and 50% were male. Hot cooking liquids scalded six people while they were at work.

1/3 of Cooking Liquid Scald Victims Were Between the Ages of 15 & 24
The people most at risk for this type of burn are generally just beginning to cook for themselves.



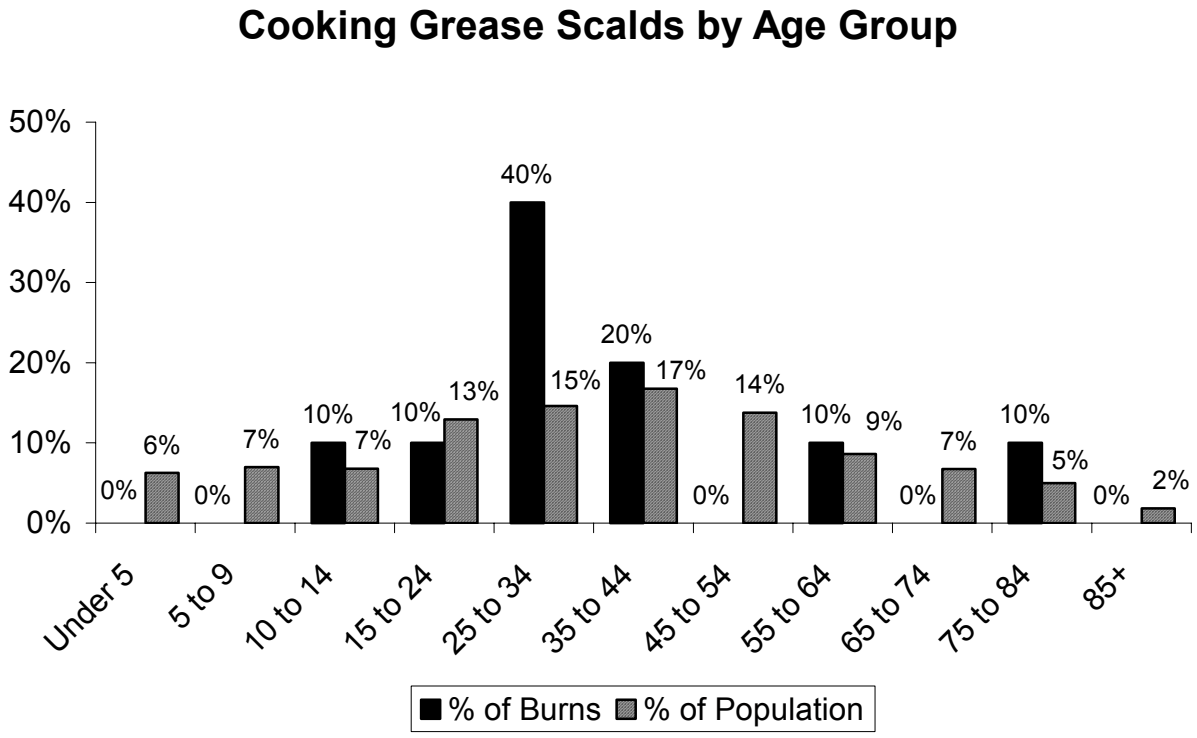
[2] Source: Knapp Burn Foundation

Seventeen percent (17%) of the cooking liquid scald victims were under five years old. They were three times more likely to be victims of a hot cooking liquid scald. Another 17% were between 5 and 9 years of age; there were no reported cooking liquid scalds for the age group between 10 and 14; members of the age group between 15 and 24 were in the highest group of scalds caused by hot cooking liquids accounting for thirty-three percent (33%), or 1/3 of all of these types of burn injuries; 4% were between 25 and 34; another 4% were between 35 and 44; 13% were between 45 and 54; 4% for the age group 55 to 64; there were no reported cooking liquid scalds for the age group between 65 to 74; and 4% for the age groups 75 to 84 and older adults over the age of 85.

Cooking Grease

Cooking Grease Caused 7% of All Scalds, 3% of All Burns
Hot cooking grease caused 10, or 7%, of the 143 scald burns and 2% of the 354 total burn injuries reported in 2001. Sixty percent (60%) of the 10 cooking grease scald victims were male and 40% were female. One of the victims was scalded while she was at work.

Cooking Grease Scalded Adults Most Often
No one under the age of 13 received a scald burn from cooking grease in 2001. Ten percent (10%) were between the ages of 10 and 14; another 10% were between the ages of 15 and 24; 40% were between the ages of 25 and 34 making this the largest age category of victims for cooking grease scalds in 2001; 20% were between the ages of 35 and 44; no one between the ages of 45 and 54 was reported to have received a cooking grease scald burn; 10% were between



55 and 64; there were no reported injuries of this type in the age group 65 to 74; another 10%

were between 75 and 84. There were no reported cooking grease scald burn injuries to anyone over the age of 77.

This type of burn injury occurs predominantly to adults. Scalds from cooking grease combined with 23 flame burns occurring in the kitchen makes the kitchen the place where burn injuries are most likely to take place. Since we must cook every day, we must learn to do so safely.

Safety Measures

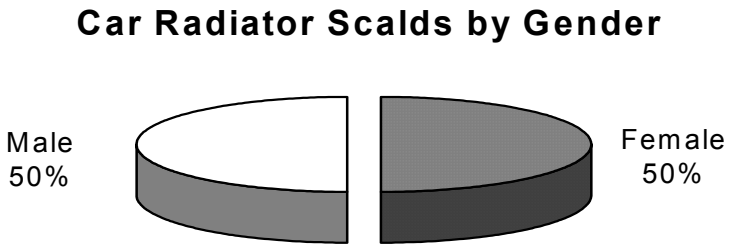
- ✓ Turn pot handles inward so children cannot pull them down.
- ✓ Never leave hot liquids or food unattended or at the edge of a table or counter to be pulled down by a toddler or a young child.
- ✓ Use mitts when carrying containers of hot liquid or food.

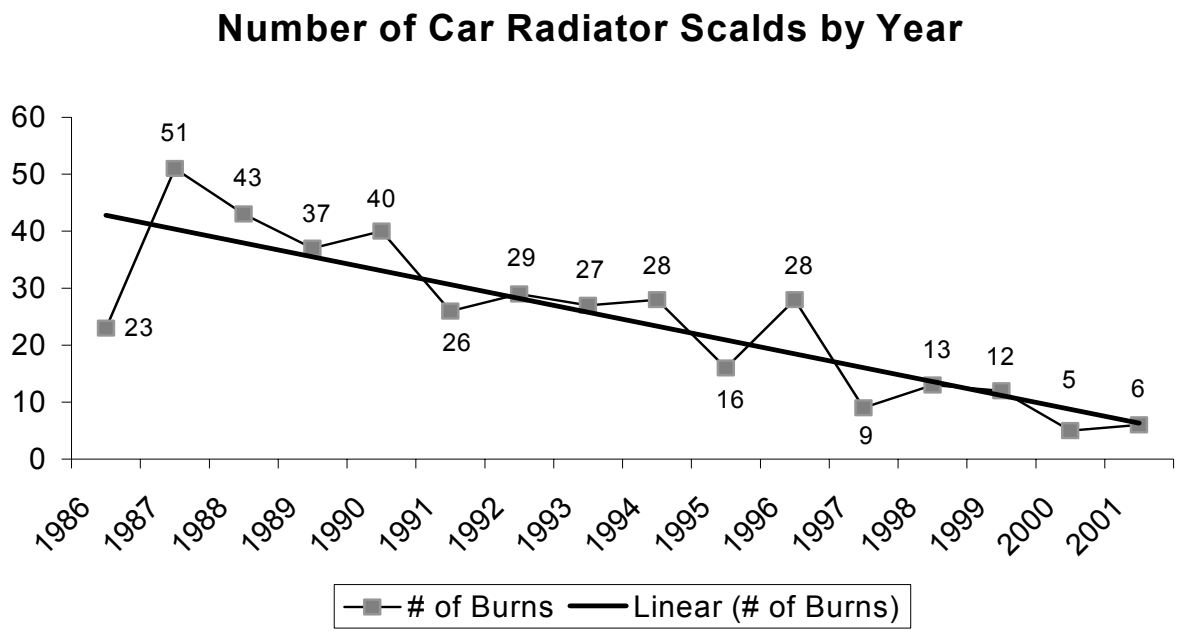
Hot Car Radiators

The improper opening of hot car radiators caused only four percent (4%) of the 143 scald burns and just 2% of the 354 burn injuries reported in 2001. This is an increase of one from the all-time low of five recorded in 2000. Over these past fifteen years, there has been a definite declining trend of scald burns from the improper opening of hot car radiators with a peak total of fifty-one occurring in 1987 to the current count of six in 2001.

The Improper Opening of Hot Car Radiators Injured Teens & Adults Only

Of the six reported scald victims from car radiators in 2001, three were male and three were female. Two victims were in the age group between 15 and 24; two more victims were between 25 and 34; another was in the group 35 to 44 years of age while the last victims belonged to the 55 to 64 year old age group. All six of these types of burns occurred between the months of May and September with only June recording more than one injury from a car radiator.





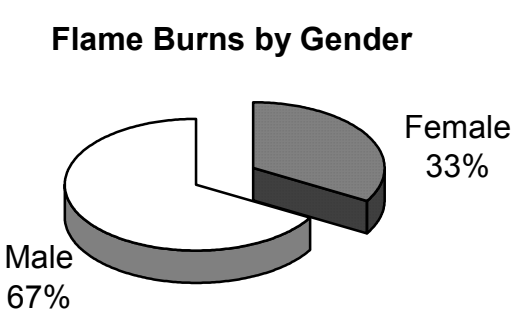
Safety Measures

- ✓ When your car overheats, keep in mind that the contents of the radiator are under tremendous pressure. If you open it, the boiling liquid and steam can erupt and cause severe burns to your hands, arms and face. Wait at least a half hour for the car to cool down, then use a rag to open slowly, releasing the pressure as slowly as possible.

Burn Injuries Caused by Flames

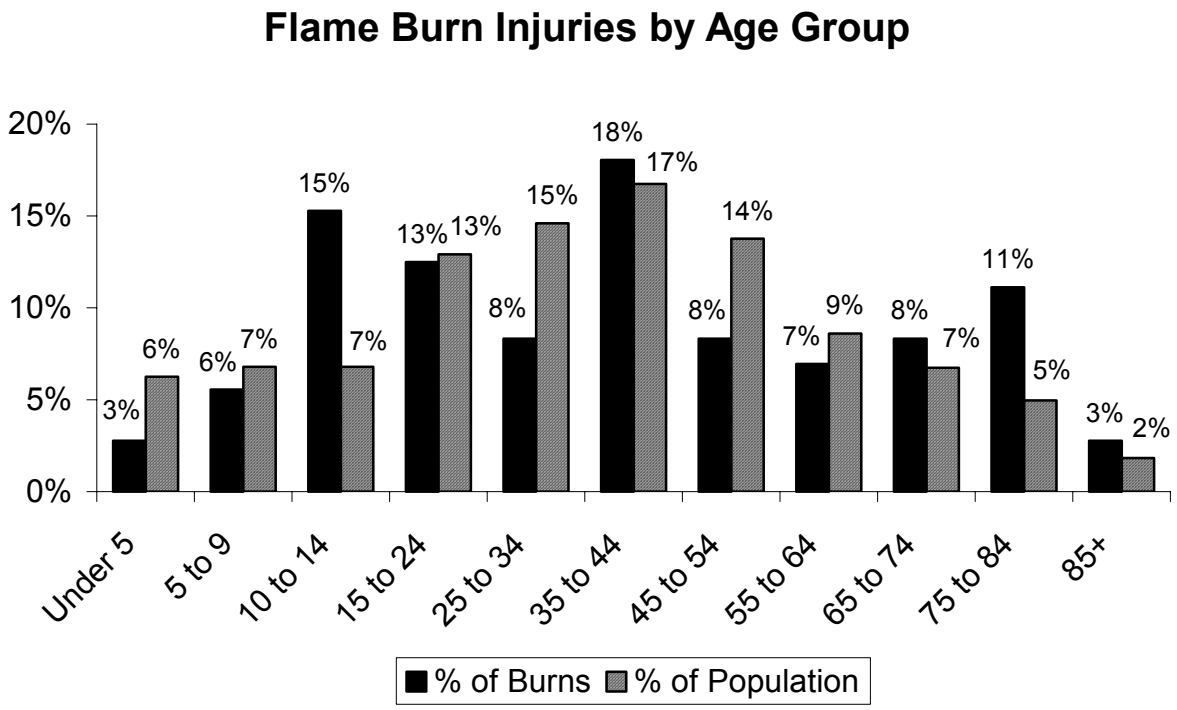
Flames Caused 20% of Reported Burn Injuries
Flames caused 72, or 20%, of the 354 burn injuries reported in 2001. A burn is said to result from flame when the fire is confined to the victim or the victim's clothing. When a wider area burns, the cause of the injury is considered a fire. Burns caused by self-immolation, smoking in bed or burning clothing usually result from flames.

Sixty-seven percent (67%) of the flame burn casualties were male and 33% were female. Five, or 7%, of the 72 flame burns occurred during work-related activities; and all five were male.



Children 10-14 & Older Adults 75-84 Faced Disproportionate Risk of Flame Burns
Three percent (3%) of the 72 flame burn victims were children under the age of five; 6% were between the ages of five and nine; 15% were between 10 and 14; 13% were victims with ages 15 to 24; 8% were between 25 and 34; 18% were between 35 and 44; 8% were between 45 and 54; 7% were between 55 and 64; 8% were between 65 and 74; 11%were between 75 and 84; and 3% of the victims were over the age of 85.

Two groups were at a higher risk for burns from flames. Children between the ages of 10 and 14 were nearly twice as likely to be burned by flames, and older adults aged, 75 to 84, were also nearly twice as likely to be burned.



Cooking Involved In 1/3 of All Flame Burns
Cooking was involved in 24, or 33%, of all flame burns in 2001. Twelve, or 15%, of the flame burns involved clothing ignitions while cooking. Ten (10), or 13%, of the victims were burned during various cooking activities. One individual received a flame burn while cooking on his barbecue, while another victim, a four-year old boy received flame burn injuries when his father tripped while carrying a fryolator that was filled with flaming oil, spilling the contents onto his son.

Six of the burn victims whose clothing ignited while cooking were male and six were female. Two-thirds of these victims were 55 years old or older with half being male and the other half female. Cooking (other than clothing ignitions) accounted for 14% of the flame burn injuries in 2001.

The next leading cause of flame burn injuries was smoking. Smoking caused 14, or 19%, of the flame burns. Five (5) of these injuries, accounting for 7% of the total injuries in this category, were due to smoking in bed. Another five (5), or 7%, of the burns were from clothing ignitions while smoking. The victim of one of these clothing ignitions was a child. Two burns from cigarette lighters were responsible for 3% of the burns. One child (1%) received a flame burn injury from playing with matches. Another victim received a flame burn injury from an unspecified smoking action.

Eight, or 11%, of the flame burns involved gasoline. Three of the victims, or 4%, were children playing with gasoline. Only one of the eight gasoline-related flame burn injuries was work-related.

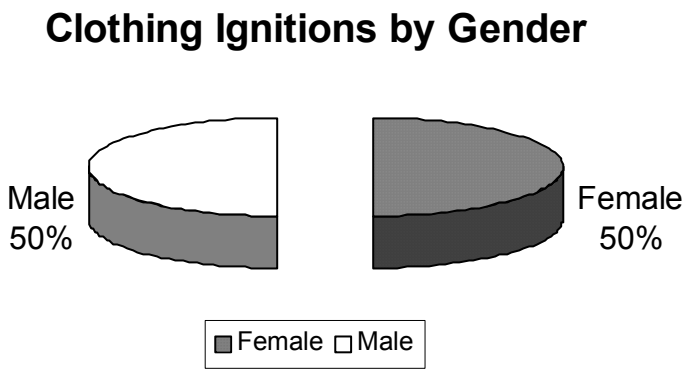
Candles accounted for five, or 7% of flame burn injuries. Two of the five were the results of clothing ignitions from coming into contact with candles.

Spilt alcohol, the contents of an aerosol can, and flammable materials each contributed to two, or 3%, of the flame burn injuries in 2001.

Propane, a lawnmower, a heater, fuel, clothing, and an assault each accounted for one, or 1%, of the flame burn injuries.

Clothing Ignitions Account for Over 1/4 of Flame Burn Injuries
Twenty, or 28%, of the flame burns injuries in 2001 involved clothing ignitions. Clothing ignitions while cooking were the cause of 12, or 15%, of these injuries. Clothing ignitions from smoking were responsible for another 4, or 6%, of the burns. Two victims, or 3% of the flame burn injuries, received their burns when a candle ignited their clothes. A child ignited his clothes while playing with a cigarette lighter.

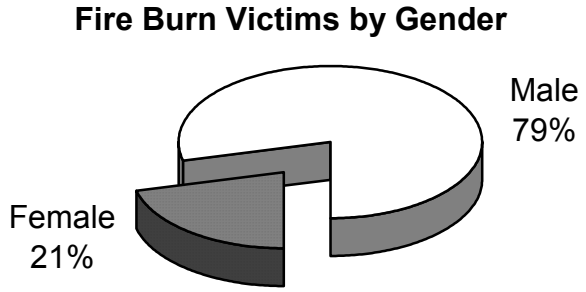
Victims of clothing ignition flame burns were even by gender. Ten (10) of the victims were male and 10 were female.



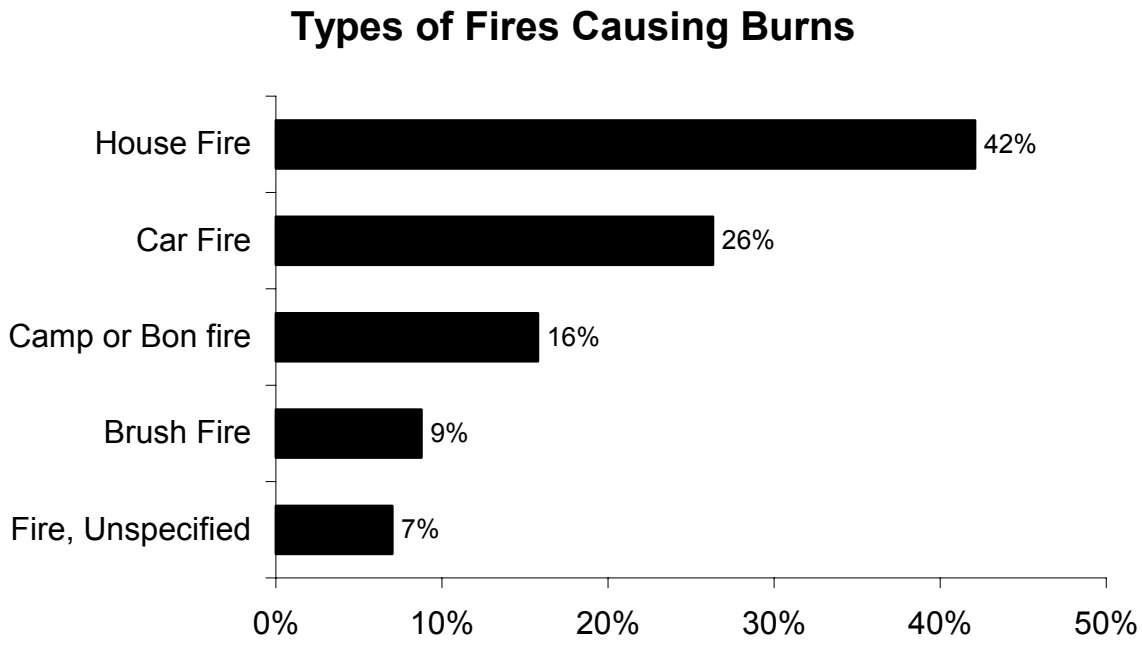
Half of All Flame Burn Injury Victims Due to Clothing Ignitions Were Over 65
Ten (10), or 50% of all the victims of flame burn injuries due to clothing ignitions were over 65-years old. Only one child between the ages of five and nine incurred this type of injury. Only one child between the ages of 10 and 14 received a clothing ignition flame burn injury. Two young adults representing 10% of this group received this type of injury. Three (3), or 15% of these victims were in the age group 35 to 44 years old. And another three, or 15% of these injuries befell the age group 55 to 64 years of age. The youngest person to receive a flame burn injury from a clothing ignition was a five-year old boy who was playing with a cigarette lighter, and the oldest victim from a clothing ignition flame burn injury was an 88-year old female who received her injuries while cooking.

Burn Injuries Caused by Fires

Fires Caused 13% of Burn Injuries
Fifty-seven (57), or 16% of the 354 burn injuries reported in 2001 were caused by fires. Seventy-nine percent (79%) of the 57 victims were male and 21% were female. Analysis of data from the Massachusetts Fire Incident Reporting System found that the majority of fire injuries occurred while the victim was attempting to control the fire. Men are more likely than women to attempt to control the fire and become injured.

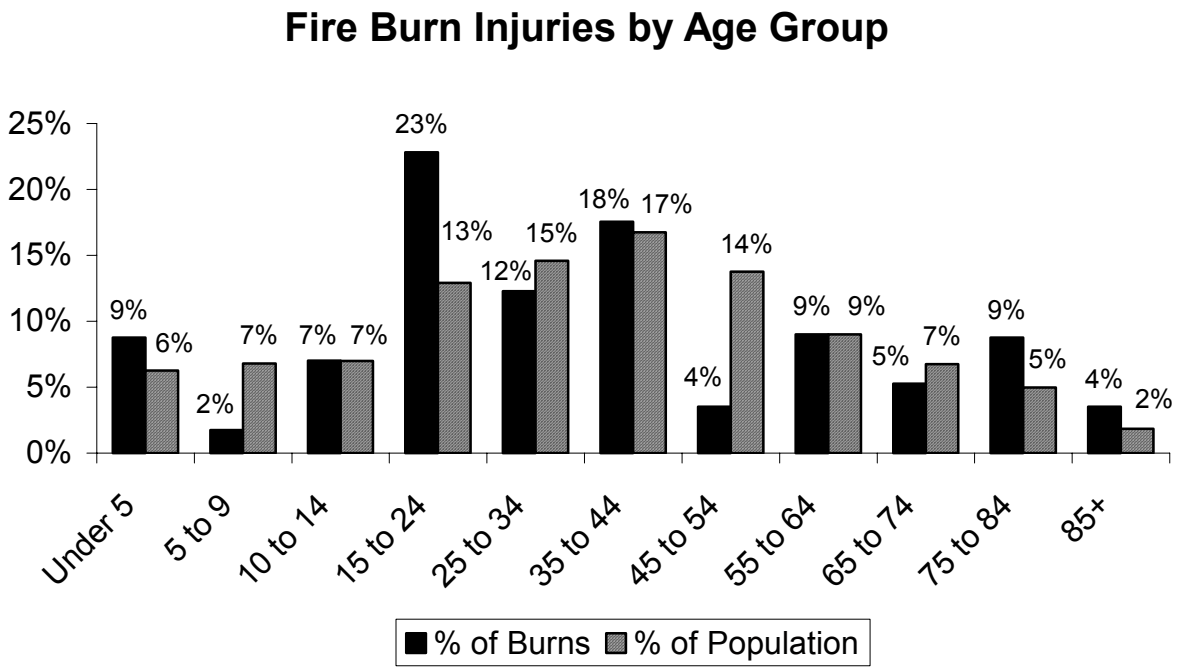


Almost 1/2 of Fire Burn Injuries Occurred in People's Homes
Residential fires caused 24, or 42% of the 57 fire burn injuries reported in 2001. Fifteen (15), or 26%, of the fire injuries occurred in motor vehicle fires; nine, or 16%, were due to camp or bon fires; five, or 9%, were caused by brush fires; and four, or 7%, occurred in unclassified fires, three of which involved alcohol and two of three also involved a cigarette, the last unclassified fire involved a 'fire-eater' unfamiliar with the type of ignitable liquid he was using.



Adults Ages 15 to 44 Are the Most Apt to Incur Fire Burn Injuries
Five, or 9%, of the victims burned in fire incidents were under five years old; 2% were between five and nine years of age; four, or 7%, were between 10 and 14; 13, or 23%, were between 15 and 24; another seven, or 12%, were between 25 and 34; 10, or 18%, were between 35 and 44; 4% were between the ages of 45 and 54; five, or 9%, were aged between 55 and 64; another 5% were aged between 65 and 74; five, or 9%, were between 75 and 84; and the remaining 4% of victims of fire burn injuries were over the age of 85.

Adults Over 75 Are 2 Times More Likely to Be Burned in a Fire
Adults over the age of 75 are at double the risk of suffering injuries related to a fire. The very young and the very old are least able to react quickly in a fire emergency, or to act for themselves, and consequently the most vulnerable to burns due to fires. Children under 5 years of age and young adults between the ages of 15 and 24 are also at a higher risk of suffering burns from a fire.

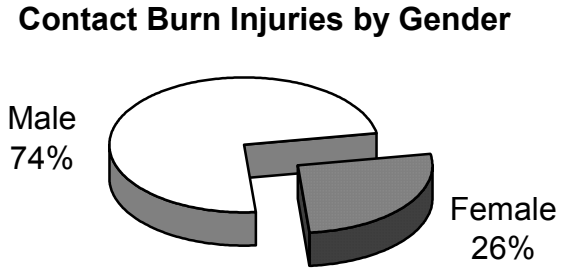


Reported Burns Are a Fraction of Injuries From Fires
Only burn injuries that extend to 5% or more of the body surface area and are treated by a medical professional are reported to the Massachusetts Burn Injury Reporting System. Consequently, the human cost of fires is under-reported in this analysis. Smoke inhalation, cuts, fractures and less severe burns incurred while fighting or fleeing the fire are not recorded here. Fire deaths are not recorded. Properly maintained smoke detectors and quick-response residential sprinklers could prevent many of the injuries caused by fires. Detectors should sound an early warning to leave the area and quick-response sprinklers can control or possibly extinguish a fire in its earliest stages.

Refer to MFIRS Annual Report for More Information about Fires
For more information about the causes of fires and fire-related casualties, please refer to the *Massachusetts Fire Incident Reporting System – 2001 Annual Report*. Using data collected by the Massachusetts Fire Incident Reporting System (MFIRS), it examines the causes of fires, fire deaths and fire injuries. Information is provided on fires in different occupancies and on special topics such as children and fire, fires caused by smoking, electrical fires, cooking fires and heating equipment fires.

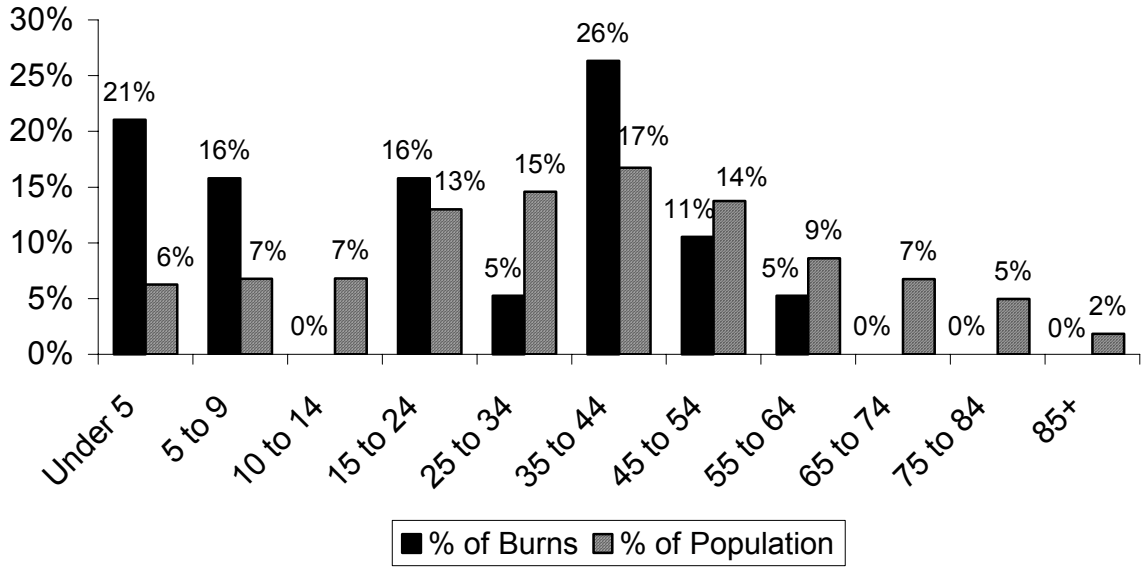
Burn Injuries Caused by Hot Objects

Contact with Hot Objects Caused 5% of Reported Burn Injuries
Nineteen (19), or 5%, of the 354 burn injuries reported in 2001 were caused by contact with hot objects. Seventy-four percent (74%) of the burn victims were male and 26% were female. None, of these contact burns occurred at work.



37% of Contact Burns Were to Children Under 10
Almost one quarter of all the 19 contact burns reported in 2001 were to children under the age of five. This age group accounted for five, or 21%, of all contact burns. Pre-schoolers faced three times the risk of contact burns. This disproportionate risk could be the result of young children exploring their environment and underscores the need for constant supervision of toddlers. Three, or 16%, of these burn victims were between the ages of 5 and 9; there were no reported contact burn injuries for the age group between 10 and 14; another three, or 16%, were between 15 and 24; 5% were between 25 and 34; the age group 35 to 44 accounted for the highest percentage of burns from hot objects with five victims, or 26%; 11% were aged 45 to 54, and adults aged 55 to 64 accounted for only 5% of the burn injuries from contact with hot objects. In 2001, no one over the age of 60 received a burn from contact with a hot object.

Contact Burn Injuries by Age Group

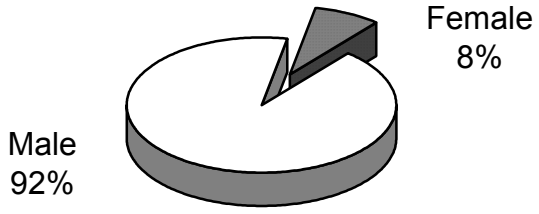


Stoves are the Leading Causes of Contact Burns
Stoves and unspecified contact burns each caused three, or 16%, of the 19 reported contact burns. Only one of these burns happened to a child under five. Pavement burns and cooking were each the culprits in two, or 11%, of contact burns. Candles, car surfing, a curling-iron, an electric blanket, hot embers, a clothes iron, a pipe, a portable heater and a radiator each caused one of the contact burns in 2001.

Burn Injuries Caused by Explosions

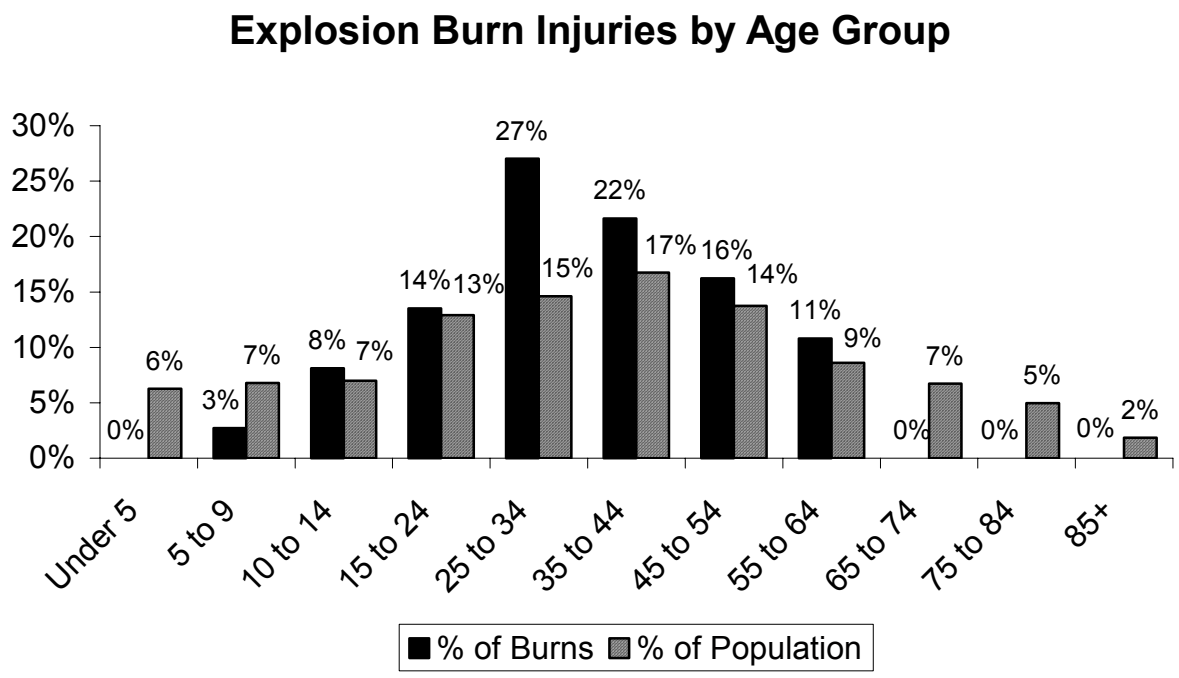
Explosions Caused 11% of Reported Burn Injuries
Thirty-seven (37), or 11%, of the 354 burn injuries reported in 2001 were caused by explosions. Ninety-two percent (92%) of the explosion burn victims were male and eight percent (8%) were

Explosion Burn Injuries by Gender



female. Fourteen (14) burns, or 38%, occurred during work-related activities. All of these victims were male. This is a return to the trend of previous years of 41% in 1999 and 26% in 1998. Last year in 2000 there was a decided downturn from previous years with only two burns, or 7%, of the explosions being work-related.

Out of these 37 injuries only four were the result of the same explosion, a gasoline explosion on a boat in the Taunton River was responsible for two of the injuries while a propane explosion in Everett was the cause of another two injuries.



Adults Ages 25 to 34 Face Greatest Risk of Explosion Burns
There were no victims who received burns as the result of explosions under five years old; one child, or 3%, were between the ages of five and nine; children between the ages of 10 to 14 were responsible for three, or 8%, of these injuries; five, or 14%, were between the ages of 15 to 24; the largest group, adults between the ages of 25 and 34 received 10, or 27%, of the explosion related burns; eight, or 22%, were between 35 and 44; six, or 16%, were between 45 and 54 years of age; four, or 11%, were between 55 and 64 years old. No one over the age of 62 received a burn injury due to an explosion.

There Were No Reported Fireworks Explosion Burn Injuries
In 2000, fireworks accounted for 10, or 33%, of all explosion related burns. In 2001, there were no reported burn injuries due to fireworks. Propane was the leading cause of explosion injuries and caused 30% of them. Gasoline was the second leading cause at 14%. Ignitable liquids and car parts each accounted for 8%; welding was the cause of 5% of the burn injuries due to explosions. A model rocket, a lighter, a gas stove, a flashburn, flammables, an engine, an unspecified electrical accident, a child playing, another child playing with gasoline, a chemical

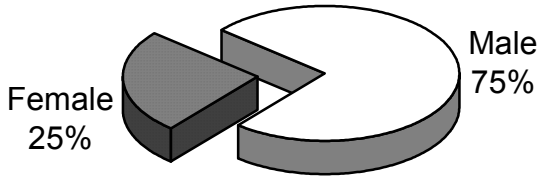
and a central heating unit each accounted for 3% of the burn injuries. Eight percent (8%) of the reported explosion burn injuries were classified as unspecified explosions.

On May 4, 2002 there was an explosion in a canteen truck. The workers had let propane gas from the stove burners build up inside the truck. When one of them attempted to light the burners the built up propane gas exploded causing burns to both men. One victim, a 50-year old man, received burns to 20% of his body – burns to his face, neck, both ears, both hands and both forearms as well as having his eyebrows singed off. The other victim, a 30-year old man received burns to his face, right side of his neck, right hand and back.

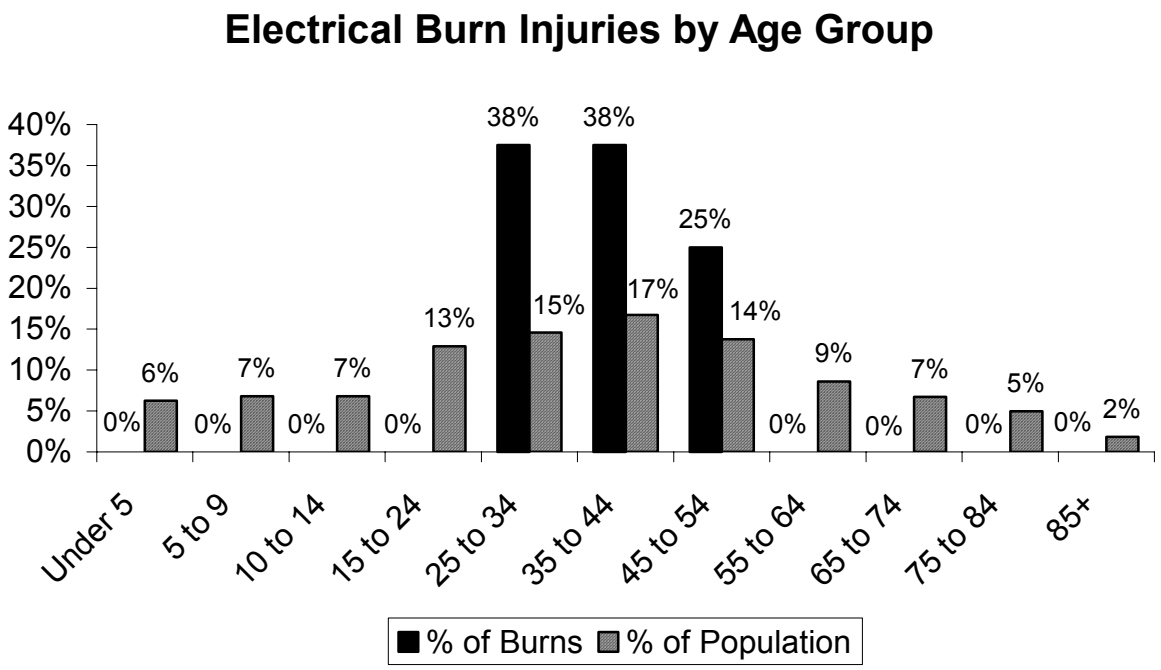
Electrical Burn Injuries

Electrical Incidents Caused 2% of Burn Injuries
Eight (8), or 2%, of the 354 burn injuries reported in 2001 were caused by electrical accidents. All but two of the electrical burn victims were male. All eight of these incidents occurred during work-related activities.

Electrical Burn Injuries by Gender



All Electrical Burn Victims Were Between the Ages of 30 and 50
No one under the age of 30 received a burn from an electrical source. Three, or 38% of the victims, who received electrical burns, were between 25 and 34; they were 2 ½ times more likely to be an electrical burn victim. People aged 35 to 44 also received three, or another 38%, of the reported electrical burns, they were 2 ¼ times more likely to be an electrical burn victim. One-quarter (25%) were between 45 and 54. No one over the age of 50 received an electrical burn.



Over 1/3 of Electrical Burns Were Caused by Explosions
One explosion caused three, or 38%, of the reported electrical burn injuries in 2001. Electrocutions and unknown electrical mishaps each accounted for two, or 25%, of electrical burns. A single flashburn[3] caused 13% of these burns.

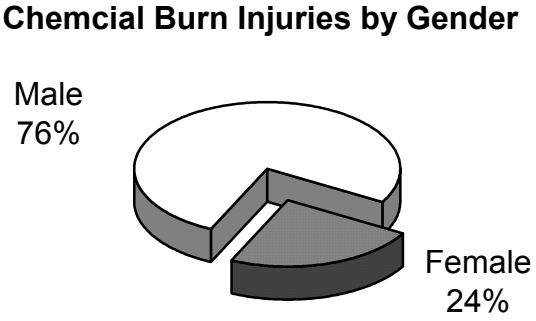
On Wednesday, January 3, 2001, at 11:40 a.m. the Everett Fire Department was called to an explosion with an ensuing fire at a Massachusetts Electric substation. The explosion was the result of an operational deficiency in the equipment, which was caused when an electrical arc jumped from a breaker. All three Massachusetts Electric employees that were working inside the building were immediately set ablaze, and were still on fire when they exited the building. A number of neighbors who heard the explosion and witnessed the three emerge from the substation, immediately rushed in to help extinguish the flames. Within a day, the man succumbed to his burn injuries. The two women were severely burned but survived.

Burn Injuries Caused by Chemicals

Chemical Exposures Caused 5% of Burn Injuries in 2001
Seventeen (17), or 5%, of the 354 burn injuries reported in 2001 were caused by exposure to chemicals. Seventy-six percent (76%) of the 18 victims were male and 24% were female. Men

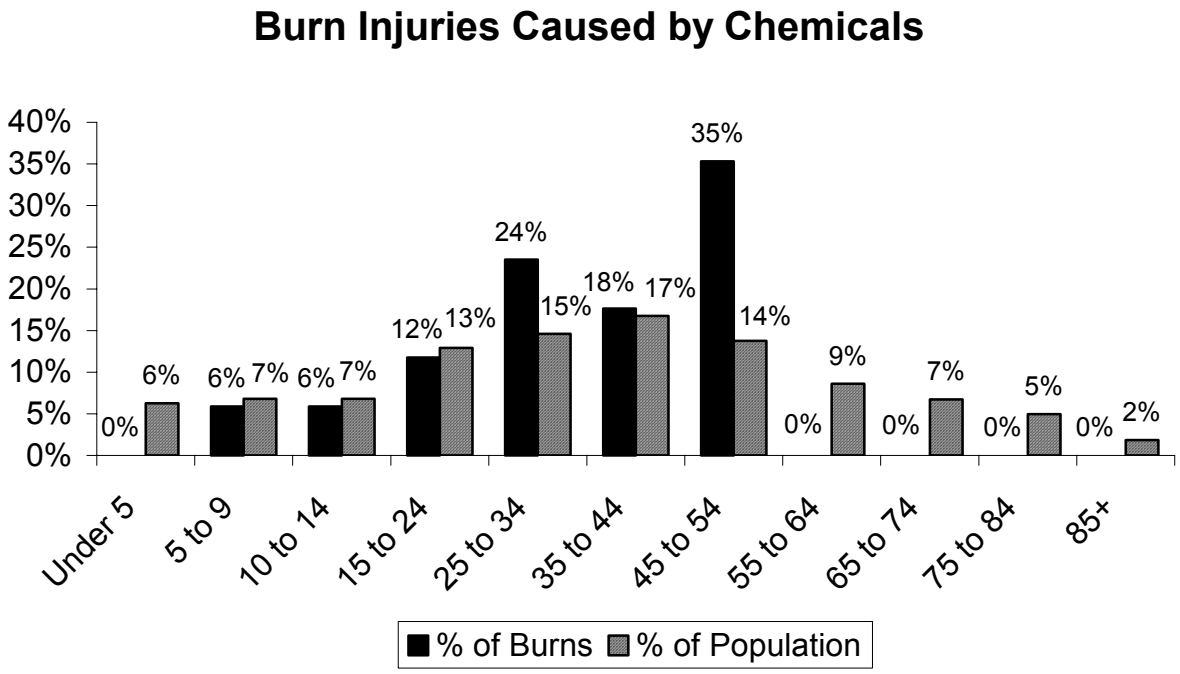
[3] A flashburn is a burn caused by a short-term exposure to super-heated air generally from an explosion; there is no direct contact with flame.

were three times as likely to be injured by a chemical burn than women. Health care facilities reported that 8, or 47%, of the 17 chemical burn victims were working when injured.



Over 1/3 of Chemical Burn Victims Were 45 to 54 Years Old

None of the chemical burn victims were under five years old. One victim was between the ages of five and nine, accounting for 6% of the reported burn injuries caused by chemicals; another victim accounting for another 6%, was between 10 and 14. Two, or 12%, were between the ages of 15 and 24; four, or 24%, were between 25 and 34; three, or 18%, were between 35 and 44; and the last six, or 35%, were between the ages of 45 to 54, and they were twice as likely to be

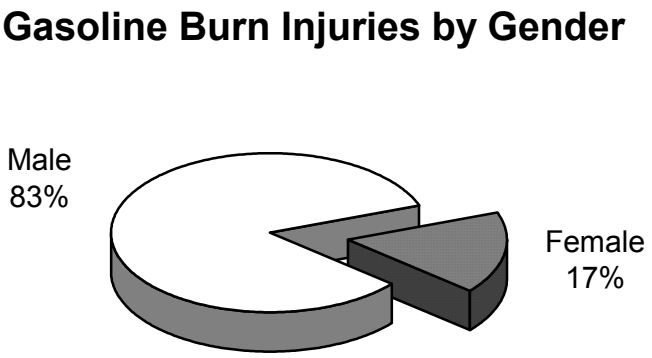


burned by exposure to chemicals. No one over the age of 55 suffered a burn caused by a chemical. The youngest victims were a seven-year old boy and girl and the oldest victims were a 54-year old man and woman.

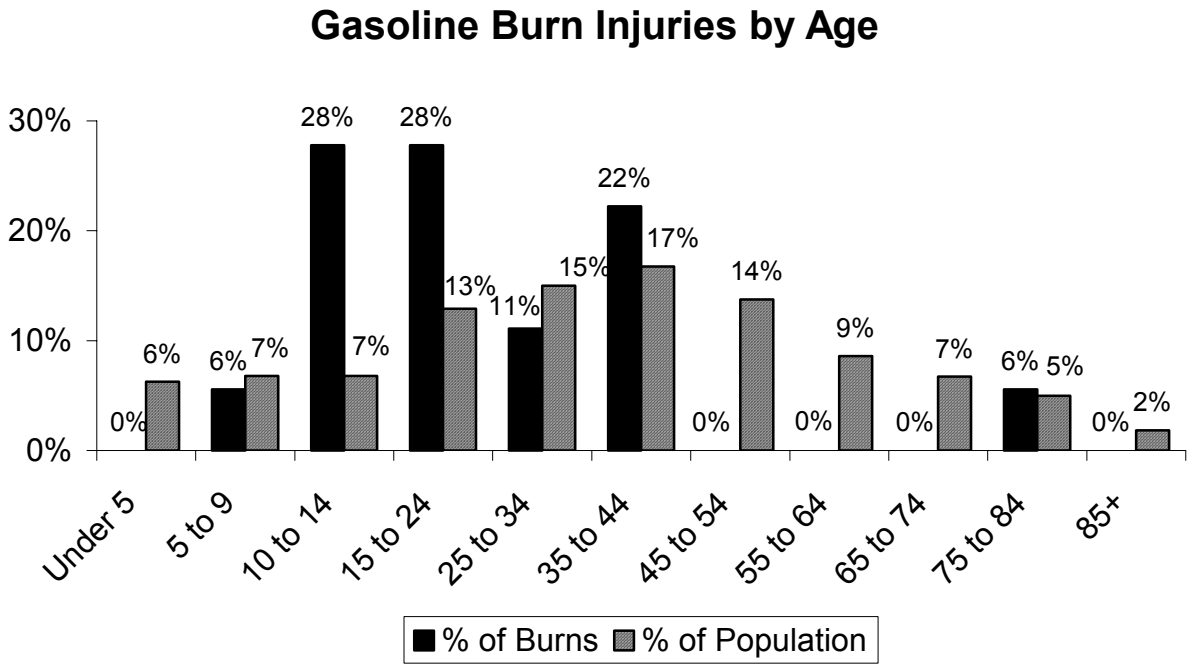
Eighty-eight percent (88%) of the chemical burns in 2001 were due to the chemical coming into contact with the victim's body; 6% were due to an explosion and the other 6% were due to a flame burn injury.

Gasoline Related Burn Injuries

Gasoline Involved in 4% of Reported Burn Injuries
Gasoline was involved in 13, or 4% of the 354 burns reported to M-BIRS in 2001. Eight, or 62%, of the gasoline-related burn injuries caused flame burn injuries. Five, or 32%, of the burn injuries involving gasoline were caused by fires. Another five, or 38%, were the result of explosions. Fifteen (15), or 83%, of gasoline burn victims were men, and three, or 17%, were women. All of the juveniles burned by gasoline were male. Only two of the incidents occurred during work-related activities.



Over 1/2 of Gasoline-Related Burn Victims Were Between the Ages of 10 and 24
There were no victims under the age of seven. One victim, or 6%, was between 5 and 9 years of age. Five, or 28%, of the victims were between the ages of 10 and 14 years old. This age group has historically been the most at risk for these types of injuries. Children in this age group were four times as likely to receive a gasoline-related burn. Another five, or 28%, of the victims were between 15 and 24; two, or 11%, were between 25 and 34; and four, or 22% were between 35 and 44 while the last victim was in the age group 75 to 84. There was only one gasoline-related burn injury to anyone over the age of 43. The youngest victim was a seven-year old boy and the oldest victim was 75-year old man.



It is actually gasoline vapors that burn, not the liquid itself. The vapors burn at a very low temperature, are heavier than air and can travel a distance to find a spark. A spark or lit cigarette is enough to light the invisible fumes that may linger on clothing. Gasoline is a tool, but a dangerous one, and it demands respect.

On January 27, 2001 a 13-year old boy was playing with gasoline at his home. Some of the gasoline fell onto his clothes. When the gasoline ignited, the victim received partial-thickness and full-thickness burns to his hands and both legs.

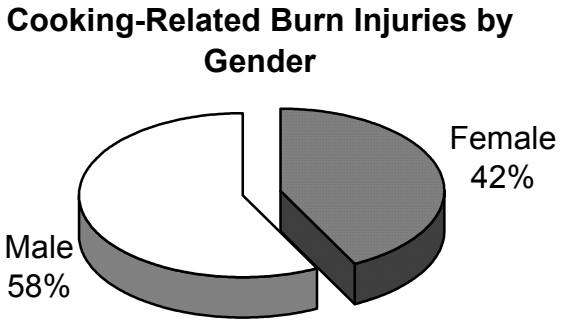
On July 2, 2001 a 12-year old boy was playing at a friend's home. A group was making a trail of gasoline. Some of the gasoline splashed on the victim. Another friend lit the gasoline trail on fire and it ran up onto the victim's clothing. He received burns to both of his legs.

Some Safety Measures

- If you must store gasoline, store it outside the home in approved safety cans away from open flames (i.e. water heaters and pilot lights) and out of reach of children.
- Never regularly carry gasoline in your trunk.
- A one-gallon approved can could be carried empty to be used only for emergencies.

Burns Caused by Cooking Activities

Cooking Activities Caused 19% of Reported Burn Injuries
Cooking activities caused 66, or 19%, of the 354 burn injuries reported to the Massachusetts Burn Injury Reporting System in 2001. Thirty-eight, or 58%, of the 66 victims were male and the other 22, or 42%, were female. Nine, or 14%, of the 66 people burned by cooking activities were working when injured.

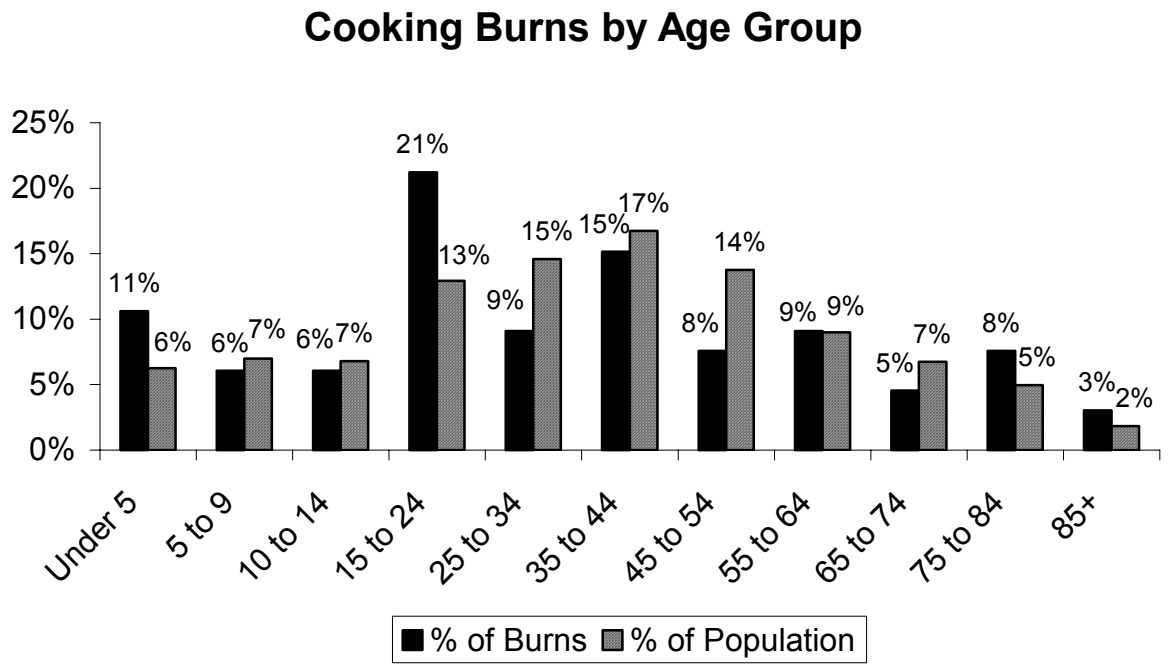


Thirty-five, or 53%, of the 66 burn injuries caused by cooking were scalds. Twenty-five, or 71%, of these scald victims were injured by hot cooking liquids and cooking grease scalds accounted for other 10, or 29%, of the victims. Thirteen, or 19% of the victims, were burned when their clothing ignited while cooking; a total of 24, or 36% of cooking-related, burns were flame burns. Five victims received their burns from coming into contact with hot stoves, or other cooking equipment, causing 8% of these burns. Two house fires caused by cooking injured two people, or 3%, of the cooking-related burn victims.

Children Under 5 Are Twice Times as Likely to be Burned by Cooking Activities
Seven, or 11%, of the cooking-related burn victims were under age five. This age group is twice as likely to be burned by cooking related activities. Four, or 6%, were aged between five and nine years of age; another 6% were between 10 and 14; 14, or 21%, were between 15 to 24 years old; six, or 9%, were between 25 and 34; 10, or 15%, were between 35 and 44; five, or 8%, were between 45 and 54; six, or 9%, were between 55 and 64; three, or 5%, were between 65 and 74; five, or 8%, of the victims belong to the age group between 75 and 84 years of age; and the last two, accounting for 3% of the victims to receive a cooking-related burn, were over the age of 85. The youngest victim of a cooking-related burn was an eight-month old boy, while the oldest victim was an 88-year old woman whose received her burn injuries from a clothing ignition while cooking.

The cause of burns varied with age. Pre-schoolers generally do not cook. They do, however, grab pot handles and sometimes get underfoot when adults are cooking. Cooking liquids or cooking grease frequently scalds them. Parents should keep young children away from the stove and food preparation areas while adults are cooking.

Young adults between the ages of 15 and 24 are the second age group that is at a greater risk to be burned in a cooking related activity. The main causes of their cooking related burns were cooking (not specified) 57%, clothing ignitions while cooking 21%, cooking grease 14%, and cooking liquids 7%. Many of the people in this age group are starting to cook by themselves for the first time. They also may be easily distracted by a variety of non-cooking related activities such as radio or stereo, television, telephone, younger children, friends and video games.
Older adults over the age of 65 are also more likely to burned while cooking. Ten older adults received burn injuries as a result of cooking in 2001. Eight, or 80%, of these victims were women and two, or 20%, were men. Five, or 50%, of cooking injuries to older adults were the result of the victim's clothing igniting while they were cooking.



Clothing Ignitions While Cooking
In 2001, 13, or 19% of the victims with cooking-related burns, were injured when their clothing ignited while cooking. Seven, or 54%, of the victims of clothing ignitions while cooking were men while 6, or 46%, were women; three women and two men were over the age of 65. Loose-fitting sleeves can come into contact with burners and catch fire.

According to data collected by the Massachusetts Fire Incident Reporting System, unattended and other unsafe cooking practices caused 2,356 fires in 2001. These fires killed three civilians and caused 86 civilian injuries and 32 fire service injuries along with $5 million in losses. Many of these people also suffered from smoke inhalation. More than 60% of these fires started when cooking was left unattended.

Safety Measures

- Never leave cooking food unattended.
- Keep children at a safe distance from all hot items by using playpens, high chairs, etc.
- Create a safe zone for children.
- Test all heated food before giving it to young children.
- Keep pot handles turned in over the stove or countertop.
- Always use oven mitts or potholders.
- Secure loose sleeves or wear short sleeves while cooking.
- Keep an approved and maintained fire extinguisher easily accessible on the kitchen wall.
- Never use water on a stove top grease fire.
- Read and follow directions when using microwave ovens and other cooking appliances.
- Children should not be allowed to use cooking/heating appliances until they are mature enough to understand safe-use procedures and tall enough to safely handle items and reach cooking surfaces.
- If cabinets exist over cooking surfaces use them to store only items which will not be needed during cooking.
- When barbecuing, use only charcoal lighter fluid to start a fire. Once the coals have been ignited, never add more charcoal lighter fuel to the fire; the container may explode in your hand.
- Dispose of used coals in a proper container away from the house or porch.

On January 6, 2001 an eight-year old boy received partial-thickness burns to both of his feet when he spilled hot spaghetti sauce on them.

On Thanksgiving 2001, a one-year old boy put his hand into the bowl of steaming mashed potatoes. He received a burn to the entire area of his right hand.

On December 19, 2001 an 11-month old boy burned over 18% of his body surface area when he pulled a hot ‘fry daddy’ on top of himself.

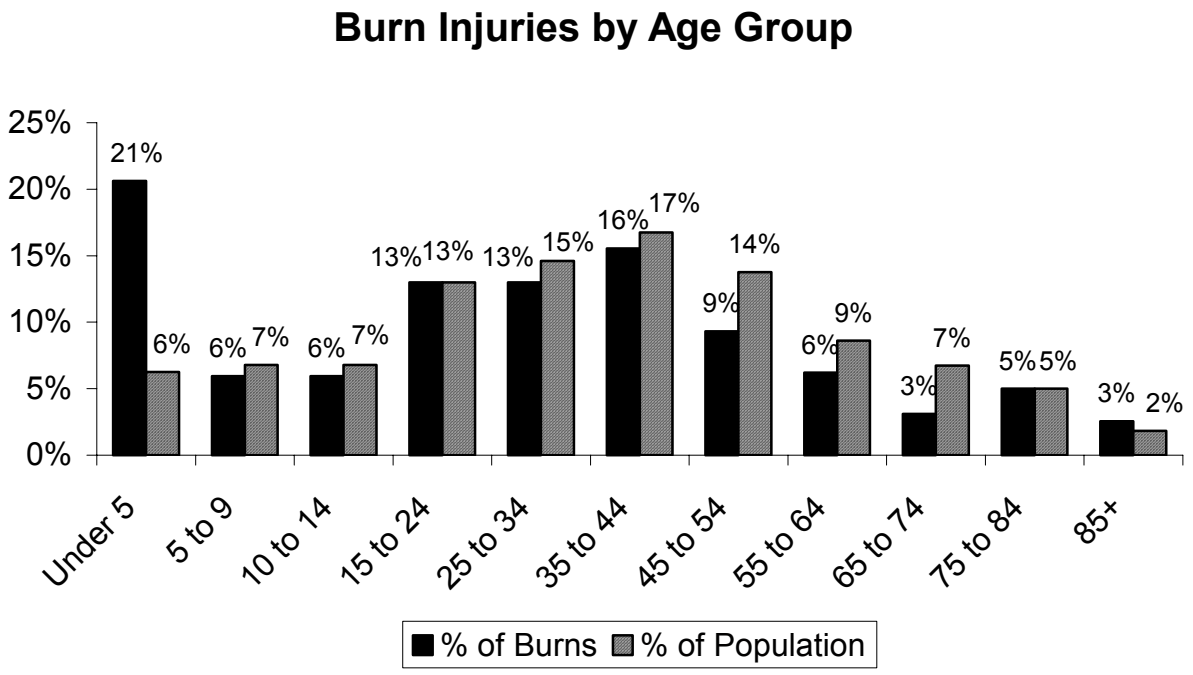
Burn Injuries by Age Group

Although burn injuries were reported in all age groups, very young children suffer more than their share. Over one-fifth (21%) of all burn victims were children under the age of five. Seventy-three (73) children under age five were seriously burned in 2001. Twenty-one (21) burn injuries occurred to children aged five to nine; 21 were youths aged 10 to 14. Forty-six (46) young adults aged 15 to 24 were burned. Forty-five (45) adults aged 25 to 34 suffered burn injuries. Fifty-five (55) people aged 35 to 44 were burned in 2001. Thirty-three (33) burn injuries occurred to adults aged 45 to 54; 22 people aged 55 to 64 were burned; 11 older adults in the 65 to 74 age group, 18 in the 75 to 84 years old age group and nine adults in the over the age of 85 received burns of more than 5% of their body surface area.

Children Under 5 At Highest Risk of Burn Injuries
The graph below compares the percentage of burn injuries incurred by each age group with the percentage of that age group in the general population. Only 6% of the population in Massachusetts is under the age of five (source: 2000 U.S. Census data). We would expect therefore that children under five would account for a maximum of 6% of the burn injuries. In fact, they accounted for 21% of the reported burn injuries in 2001, making them three times more likely to suffer burn injuries. Children of this age group are the most dependent on others to protect them and are not able to move out of harm's way unassisted.

The threat of burns is most severe for children less than two-years old. Forty-nine (49) babies under the age of two, accounted for 16% of all burn victims, but all children under the age of five accounted for 6% of the Massachusetts population.

Scalds were the leading cause of burn injuries in every age group except children between the ages of 10 and 14, adults between the ages of 35 and 44, and older adults over the age of 65.



Flame burns were the leading cause for these three age groups.

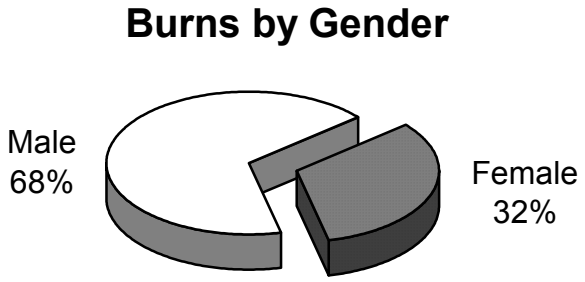
To learn more about the specific causes and prevention strategies for each age group, please look at the age specific sections within *Burn Injuries by Age Group*.

Causes of Burn Injuries by Age and Gender

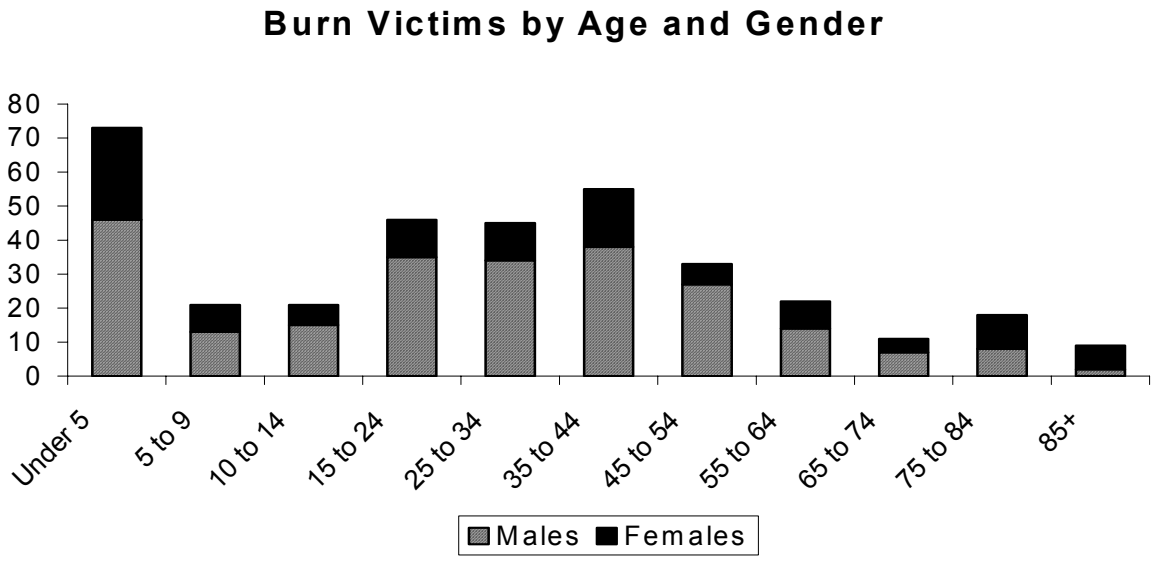
The leading causes of burn injuries vary widely between age groups depending on the nature of activities in which people are involved. Children under five are busy exploring their environment and reaching for anything in their grasp. Sixty percent (60%) of the burns incurred by these young children were scalds caused by hot beverages and another 18% were caused by hot tap water scalds. Cooking grease scalds, the improper opening of hot car radiators, gasoline and chemicals were frequent causes of burn injuries to older teens and young adults**.**

Parents of young children must be educated about the danger of scalds from hot beverages, cooking liquids and tap water. Teens and young adults need information about cooking safely, procedures to follow when a car overheats and the correct uses of gasoline. To be effective, burn prevention educators must develop strategies that address the risk faced by each age group.

Up until 75 years of age, males are burned more frequently than females. In 2001, two-thirds of



the burn victims were male. Two hundred and thirty-nine (239), or 68%, of the 354 burn victims were male, and 115, or 32%, were female.



Children Under 5

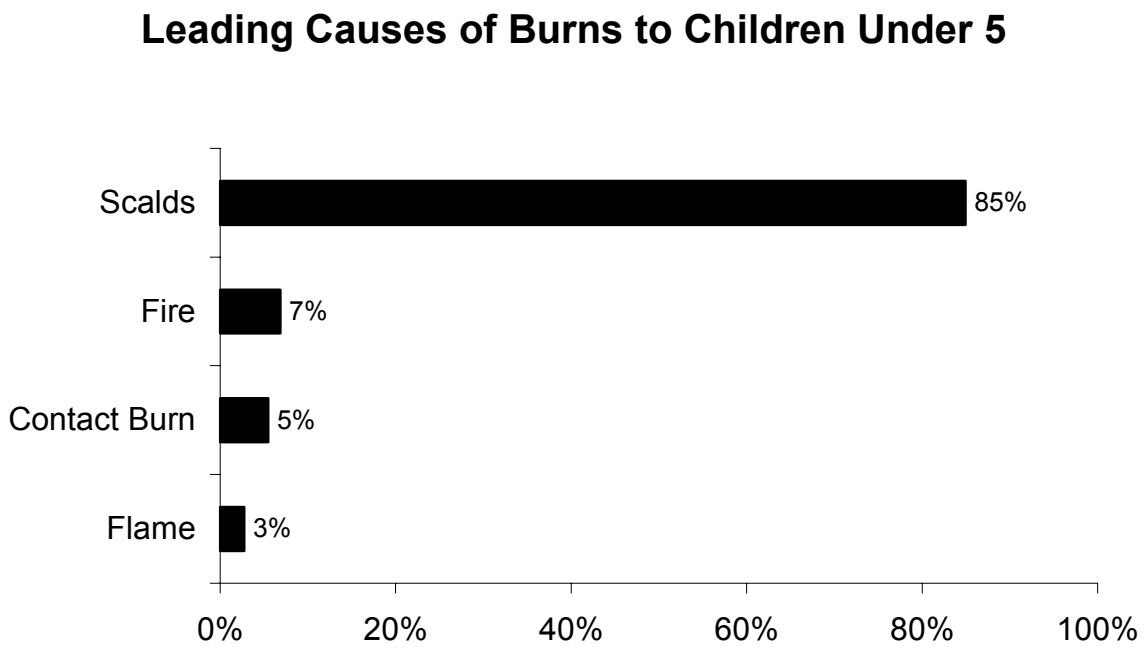
1/5 of Reported Burns Incurred by Children Under 5
Seventy-three (73), or 21%, of the burn injuries reported to M-BIRS in 2001 were incurred by children under five years old. According to the 2000 U.S. Census, only 6% of Massachusetts residents are under the age of five. Children under five were three times as likely to be burned as were members of the general population. No other age group faced a risk this high. Sixty-three percent (63%) of burned pre-schoolers were male and 37% were female.

Scalds Caused Over 4/5 of Burns to Pre-Schoolers
Scalds caused 62, or 85%, of the burn injuries incurred by children under five. Forty-four (44) from hot beverages, 13 from hot tap water, four from hot cooking liquids, and one from a hot microwaved liquid.

Fire caused five, or 7%, of the injuries to this age group. Children under five were burned in two house fires, two in camp or bonfires, and one in a motor vehicle fire.

Contact burns accounted for four, or 6%, of the injuries to children under the age of five. One burn was received by touching a hot pipe. Another child received burns by being dragged on pavement. An unspecified cooking activity, and contact with an unknown item caused the last two burn injuries to children under five.

Flame burns caused two, or 3%, of burns to this age group. One child was injured while playing with matches. The other child was burned when his father accidentally tripped while carrying a hot fryolater spilling hot cooking liquids and igniting the child's clothing.



Children Ages 5 to 9

6% of Reported Burn Injuries Incurred by Children 5-9
Twenty-one (21), or 6%, of the burn injuries reported in 2001 were incurred by children between five and nine years of age. Thirteen (13), or 62%, of the burn victims were male, and eight, or 38%, were female. Children in this age bracket accounted for 7% of the population of Massachusetts and 6% of the injuries in 2001.

Scalds Caused Almost 1/2 of All Burns to Children 5-9
The leading causes of burn injuries to children aged five to nine were scalds, flame burns, contact burns, chemical burns, fires and explosions.

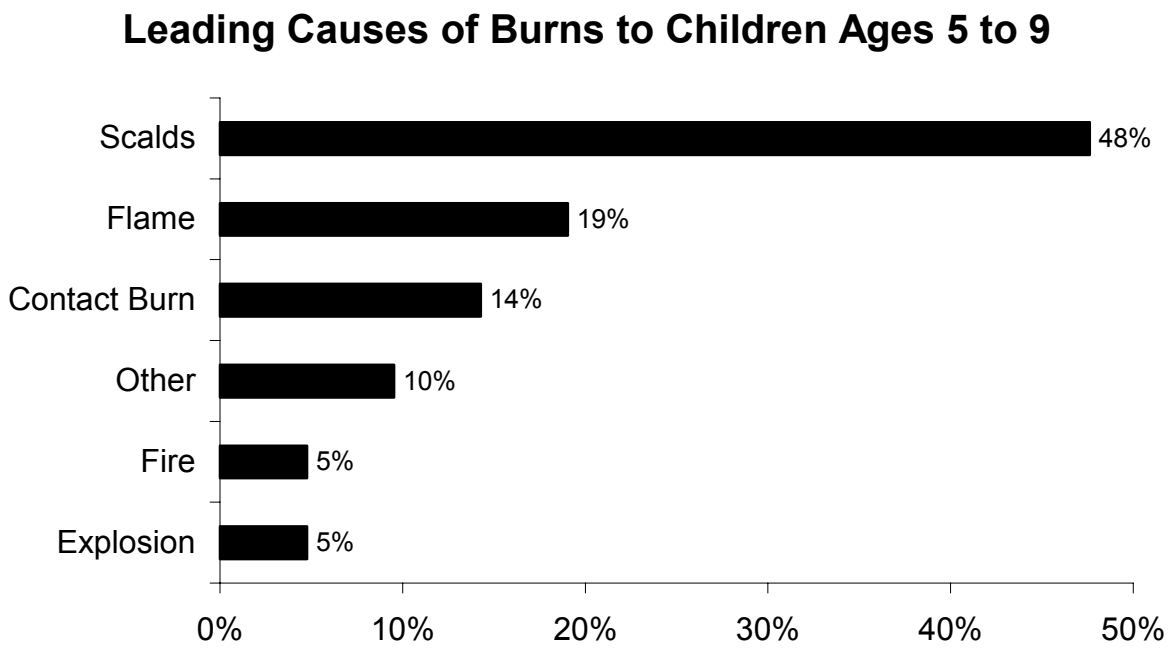
Scalds caused 10, or 48%, of the burn injuries incurred by children aged five to nine in 2001. The scald burn injuries included five from hot beverages, four from cooking liquids, and one from hot tap water.

Flame burns accounted for four, or 19%, of the burn injuries to this age group. Each of the four injuries was from a different cause. One child ignited his clothing while playing with a lighter. One child was “playing” with gasoline. One had a cigarette lighter. The last child in this age category who suffered a flame burn injury was too close to a propane heater which ignited his shirt burning has back and right elbow or 15% of his body surface area.

Contact burns caused three, or 14%, of the burns to children aged five to nine. One child was injured when he touched a hot a curling iron. One child's feet were burned when he walked on hot coals. One child ran out into the road was struck and dragged by a car incurring pavement burns to his left leg.

Two children were inflicted with chemical burns accounting for 10% of the burns to this age group.

A fire and an explosion each accounted for one burn injury to children between the ages of five and nine. An explosion of a propane tank injured one child. A house fire was the cause of the other burn injury.



Children Ages 10 to 14

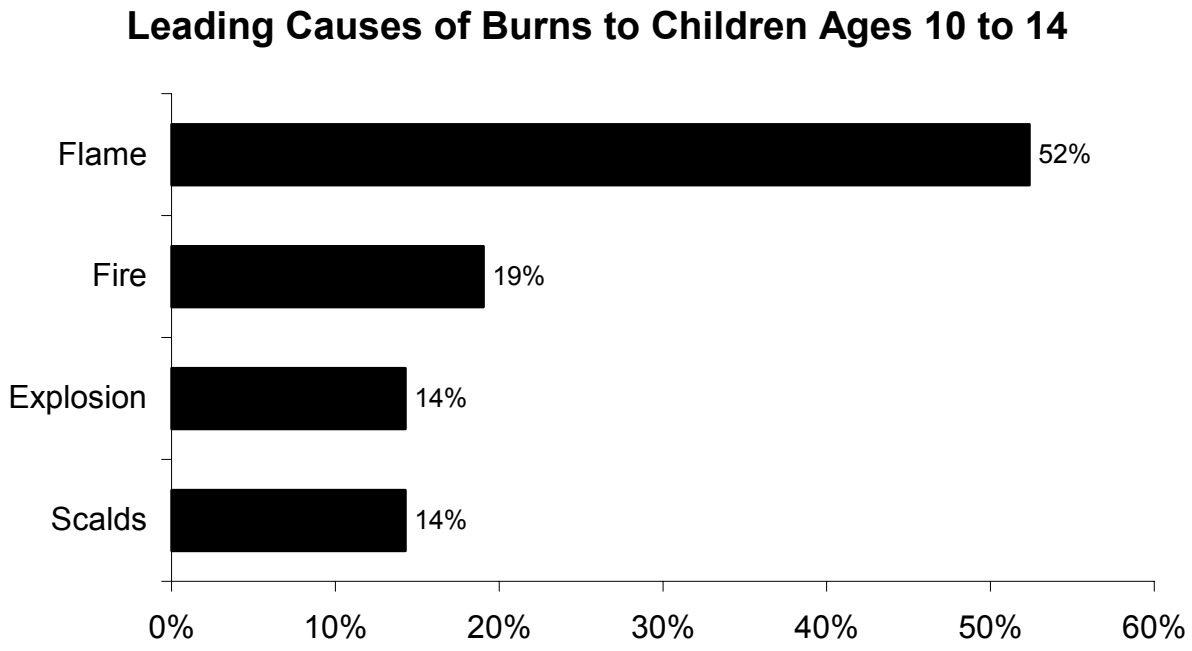
6% of Reported Burns Incurred by Children 10-14
Children between the ages of 10 and 14 suffered 21, or 6%, of the burn injuries reported in 2001. Fifteen (15), or 71%, were male and six, or 29%, were female. Children in this age bracket accounted for 7% of the population in the Commonwealth of Massachusetts in 2001 and accounted for 6% of the total reported burn injuries. At this age, children are exploring their environment more on their own, but often without the maturity or experience to reason out cause and effect.

Flame Burns Were the Leading Cause of Burns to Children 10-14
Flame burns caused 11, or 52%, of the 21 burn injuries to children ages 10 to 14. This is the only one of three age groups in which scald burns were not the leading cause of burn injuries. The causes of flame burn injuries included four ignitions of gasoline, two of which involve children playing with gasoline. Two ignitions of alcohol; one ignition of another type of ignitable liquid, and one clothing ignition while cooking were other causes of injury to this age group. One child incurred a burn to his face when he was igniting a charcoal grill with lighter fluid and there was a "flash of fire" which burnt his face. While attempting to roast marshmallows another child received partial and full-thickness burns to her knees, thighs and hands when an aerosol can near a campfire exploded sending its flaming contents onto the child's clothes, and one child received an injury from an unspecified flame burn.

Four, or 19%, of the burn injuries to this age group were due to fires; two pre-teens were injured in campfires; one was injured in a motor vehicle fire; and one received burns from a brush fire.

Scalds represented 14% of the burns incurred by children aged 10 to 14. One adolescent was burned by hot tap water; another was injured from her hot beverage; and another received a burn when he spilled cooking liquids on himself. This is the only one of three age groups where scalds were not the leading cause of burns.

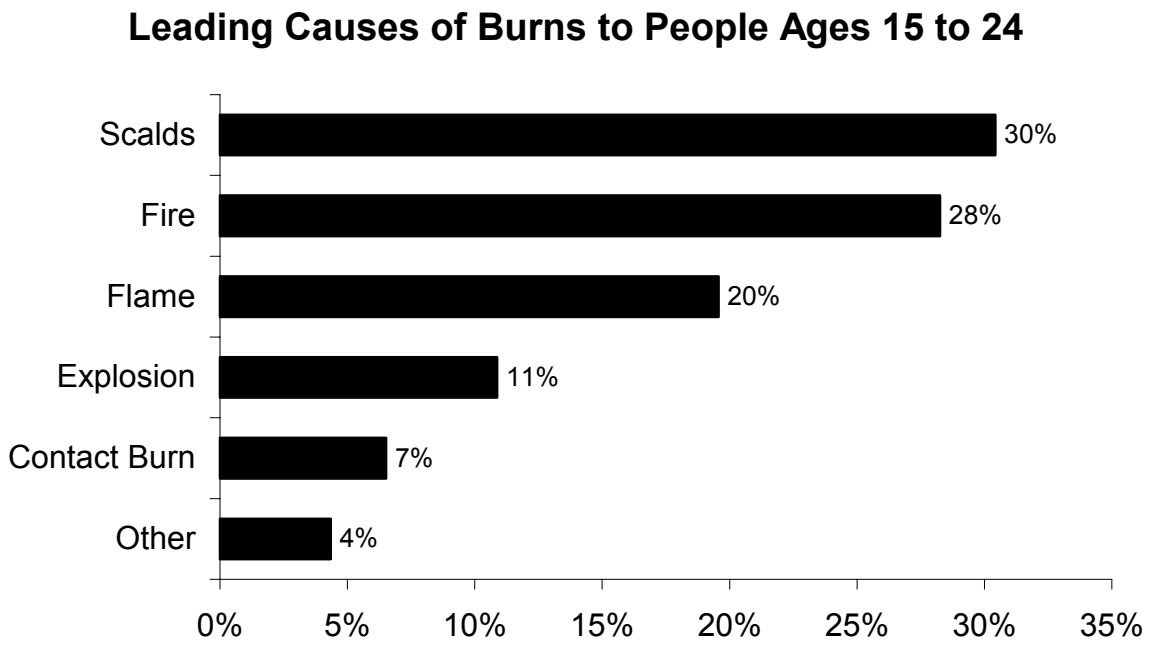
Three, or 14%, of burn injuries incurred by this age group were from explosions. One child was burned while using paint as an accelerent to light plastic toy figures on fire. Another child mixed sparkler powder and chlorine pool powder in a plastic container; then after he put the container in his pocket it exploded causing partial-thickness burns to his thigh and groin. The third child in this age group received burns from a propane explosion.



Ages 15 to 24

13% of Reported Burn Victims Between 15-24
Teens and young adults between the ages of 15 and 24 incurred 46, or 13%, of the burn injuries reported in 2001. Thirty-five (35), or 76%, were male and 11, or 24%, were female. Young adults aged 15 to 24 account for 13% of the population of Massachusetts and also 13% of the burn injuries in 2001. Nine (9), or 18%, of the burn injuries incurred by this age group were work-related.

Almost 1/3 of Burns Were Scalds
Scalds were the leading cause of burn injuries to this age group. Thirty percent (30%) of the burn injuries incurred by people aged 15 to 24 were scalds. Eight victims received burns from hot cooking liquids, three from hot beverages, two received scalds from car radiators, and one from cooking grease.



Thirteen (13), or 28%, of the burn injuries to people 15 to 24 years of age were caused by six motor vehicle fires, two brush fires, two camp or bon fires, two unspecified fires and one house fire.

Nine (9), or 20%, of the burn injuries were caused by flames. Four were caused by cooking including two clothing ignitions. A candle, self-immolation, burns from a flammable fuel, ignitable liquids, and propane accounted for one injury each.

Explosions injured another five, or 11%, of people in this age category. One injury was the result of improper use of gasoline, the other four injuries were caused by an explosion involving a model rocket, a flashburn, a car part, and an explosion of unspecified cause.

Contact burns accounted for three, or 7% of burn injuries suffered by victims between the ages of 15 and 24. One burn was caused from contact with a clothes iron, another from contact with the pavement while car surfing, and the third one was an unspecified contact burn.

Two (2), or 4%, of the burn injuries incurred by this age group were grouped in the "other" category: one was a chemical burn and the other burn was from an unknown source.

Ages 25 to 34

Almost 1/3 of Reported Burns Were Work-related
Forty-five (45), or 13%, of the burn injuries reported in 2001 were incurred by people between 25 and 34 years of age. Thirty-four (34), or 76%, of the victims were male and 11, or 24% were female. Fourteen (14), or 30%, of the burn injuries suffered by this age group were work-related. People between the ages of 25 and 34 accounted for 15% of the population of Massachusetts while accounting for 13% of the total number of burn injuries reported in 2001.

Over 1/4 of Burn Injuries Were Scalds
Scalds were the leading cause of burns to people between the ages of 25 and 34. Thirteen (13) burns accounted for 29% of the burn injuries to this age group. These scald burns included four burns from cooking grease, four from hot tap water, two from hot car radiators, one from an unspecified cooking act, one from steam and one from a hot beverage.

Ten (10), or 22%, of the burns to 25 to 34 year olds were caused by explosions; three involved propane, two involved gasoline, and one was caused by an explosion of a flammable material. A welding accident and a car part were each involved in one explosion and two explosions had unknown causes.

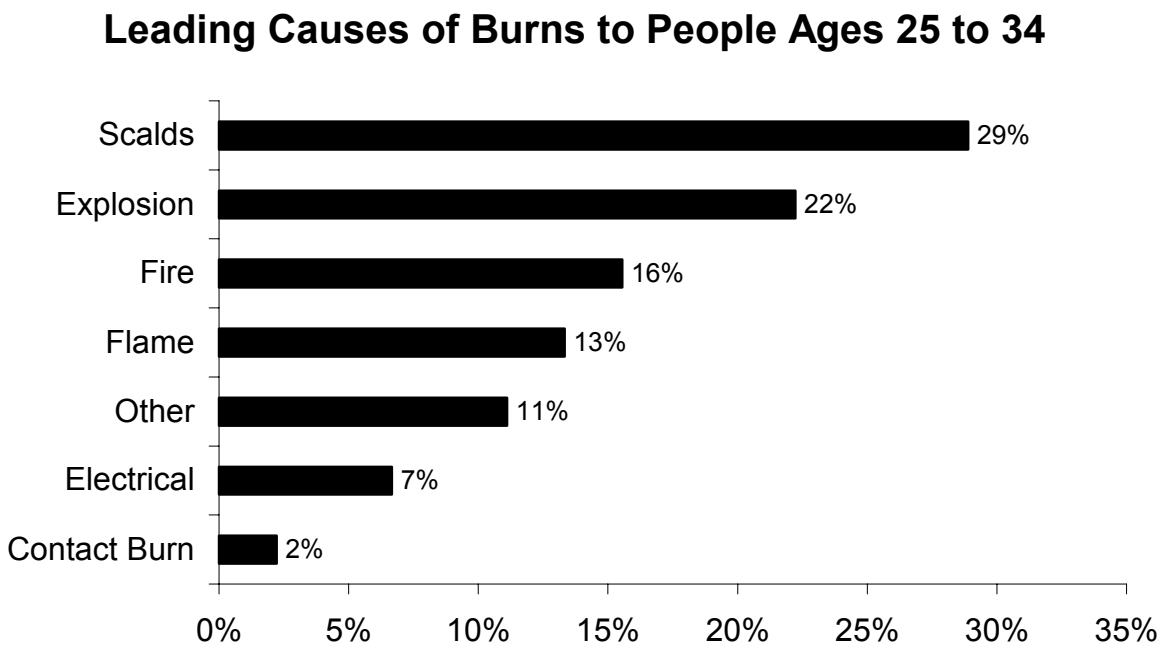
Seven fires -- two house fires, two car fires, one camp or bon fire, one brush fire, and one unspecified fire -- accounted for 16% of the injuries to this age group. Each fire injured one person.

Flame burns caused six, or 13%, of the injuries to 25-34 year olds. These flame burns included a burn from a cigarette lighter, cooking grease, an act of self-immolation, smoking, a candle, and a burn injury when an aerosol can was knocked onto a grill and ignited the victims clothing.

Another five, or 11%, of the burns incurred by this age group were classified as "other" burns. Four were chemical burns, and one was of an unknown cause.

Three victims, accounting for 7% of the injuries to this age group, were injured by electrical burns. One individual was electrocuted, one was injured in an electrical explosion and one victim was injured by an unspecified electrical problem.

Contact burns accounted for one, or 2%, of the burn injuries to people between the ages of 25 and 34. This burn was incurred from contact with a hot candle.



Ages 35 to 44

16% of Reported Burn Victims Were Between 35 and 44 Years of Age
Fifty-five (55), or 16%, of the burn injuries reported in 2001 occurred to people between the ages of 35 and 44. Thirty-eight (38), or 69%, of the victims were male and 17, or 31%, of the victims were female. Eleven (11), or 20%, of the burn injuries incurred by this age group were work-related. Adults between the ages of 35 and 44 accounted for 17% of the Massachusetts population but only 16% of the reported burns in 2001.

Almost 1/4 of Burn Injuries Were Flame Injuries
Flame burns and scalds were tied as the leading cause of burn injuries to adults between the ages of 35 and 44. Each cause garnered 13, or 24%, of the injuries incurred by this age group. Four of the flame burns were from cooking; three were from smoking; and two were from gasoline ignitions. One flame burn was from an ignitable liquid; one was the result of self-immolation; another was a clothing ignition from a candle. A victim also suffered burns to his face and hands when the chemical brake cleaner he was using suddenly ignited.

Four victims of flame burn injuries to this age group received their injuries from cooking. One was a clothing ignition while cooking. Another received his burn when a cardboard box fell onto the stove and caught fire. The other two victims received their cooking-related flame burns from stove top grease fires.

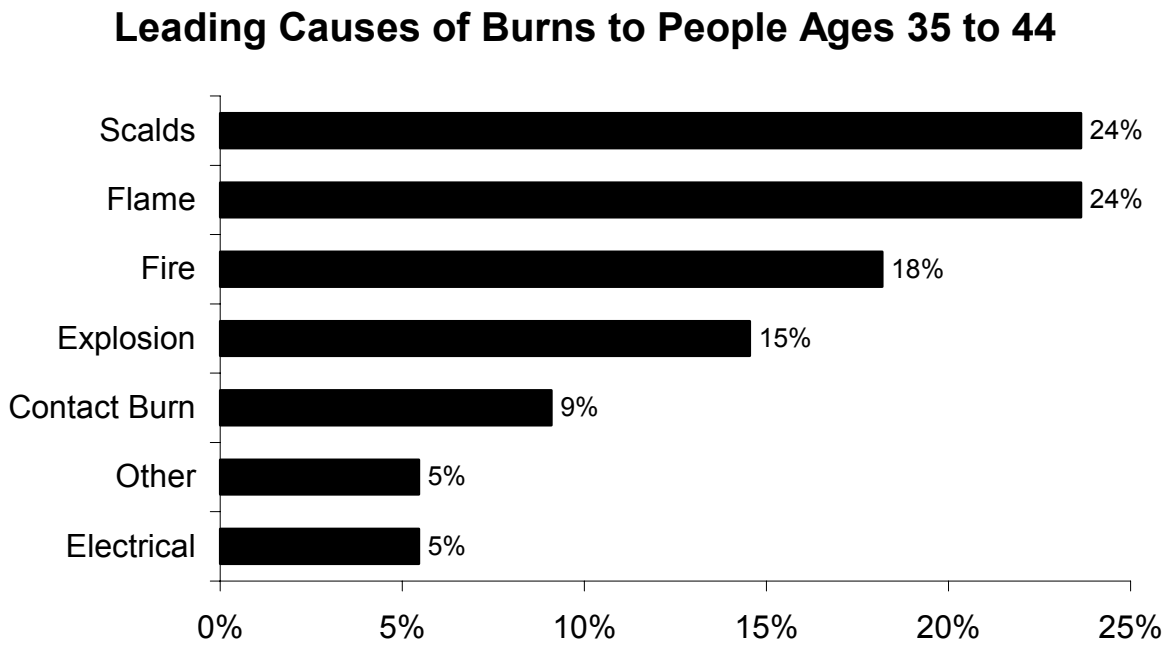
Three of the victims of flame burn injuries to this age group incurred their injuries from smoking. Two of the victims were smoking in bed; while the third victim ignited his clothes from smoking.

The other leading cause of burns to people between 35 and 44 years of age were scalds. Thirteen (13), or 24%, of these burn injuries were caused by scalds. Three were work-related. These injuries included five scalds from hot tap water, two from cooking grease, and one each from a hot beverage, an assault, a car radiator, a cooking liquid, steam and contact with an unknown substance.

Ten (10) fires accounted for 18% of the burn injuries to this age group. Six house fires; two motor vehicle fires; a camp fire; and an unspecified type of fire accounted for all 10 burn injuries. One person aged 35-44 was injured in each of these fires.

Explosions accounted for 15% of the total burn injuries to this age group. Three of these eight explosions were caused by ignitable liquids; two by gasoline; and one each by propane, a car part, and an unspecified electrical problem.

Contact burns accounted for 9% of the burns to this group. Two of these injuries were caused by a stove while the other three were caused by contact with a portable heater, contact with an electric blanket, and one contact burn of unspecified origin.



There were three (3) electrical burns accounting for 5% of the total number of burns for this age group. Two of the three burns were from electrical explosions while the third was a flashburn. All three were work-related.

"Other" burns accounted for three, or 5% of the injuries to people between the ages of 35 to 44. Two of these injuries were due to chemical burns while the other was of unspecified origin.

Ages 45 to 54

9% of Reported Burn Injuries Were Between 45 and 54 Years of Age
People between the ages of 45 and 54 incurred 33, or 9%, of the reported burns in 2001. Twenty-seven (27), or 82%, of the victims were male, and six, or 18%, were female. Thirteen of the 33 burn victims aged 45 to 54, or one-third, were burned while at work. This age group represents 14% of the population of Massachusetts while it only received 9% of the burn injuries in 2001.

Scalds Cause Over 1/4 of the Burn Injuries
Scalds were the leading cause of burn injuries to this age group. In 2001, scalds caused nine, or 27%, of the burn injuries to people aged 45 to 54. These scald burns included three from hot beverages, three from cooking liquids, and one each from hot tap water, steam, and a central heating unit.

Flame burns were incurred by six, or 18%, of the burn victims between the ages of 45 and 54. These flame burns were caused by a candle, an assault, a lawnmower, an oven and an unspecified activity.

There were six victims of explosions. They accounted for 18% of the burn injuries to this age group. Two of the explosions were from propane, with the remaining four being caused by cigarette lighter, an engine, a central heating unit and a welding accident.

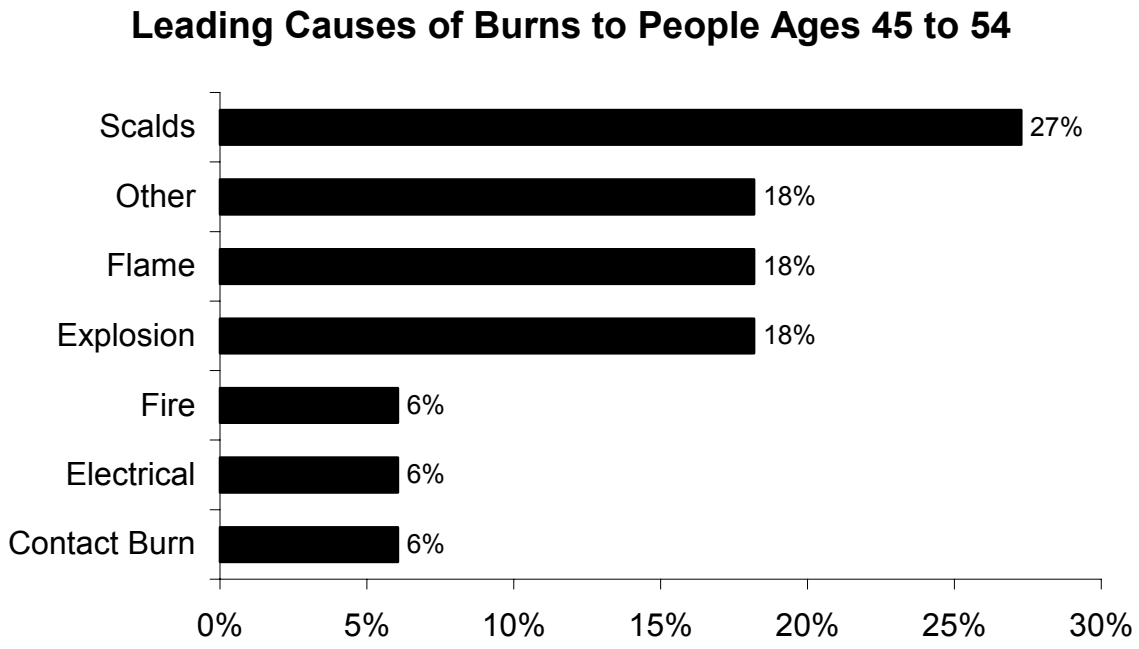
Six (6), or another 18%, of the burn injuries to this age group were attributed to "other" causes. All six of these burns were due to chemical burns.

Two (2), or 6%, of the burns to victims between the ages of 45 to 54 were contact burns. One was from contact with a home heating radiator and the other contact burn was from an unspecified cooking activity.

There were two electrical burns, accounting for another 6% of the burns to people between 45 and 54 years of age. One was from an electrocution while the other was from an unspecified electrical accident.

Burns from fires caused two, or 6% of the burn injuries to victims 45 to 54 years old. One brush fire started by embers, accounted for 3% of the burn injuries to this age group. An unspecified

type of fire started by a cigarette caused another 3% of the burn injuries to those victims between the ages of 45 to 54.



Ages 55 to 64

6% of Burn Victims Were Between 55 and 64 Years Old
Twenty-two (22), or 6%, of the burns reported in 2001 were incurred by people between the ages of 55 and 64. Fourteen (14), or 64%, of the victims were male, and eight, or 36% were female. Two, or 9%, of the 22 burn injuries incurred by people between 55 and 64 years old were reported to be work-related. People of this age group represent 9% of the total population of Massachusetts but only received 6% of the burns in 2001.

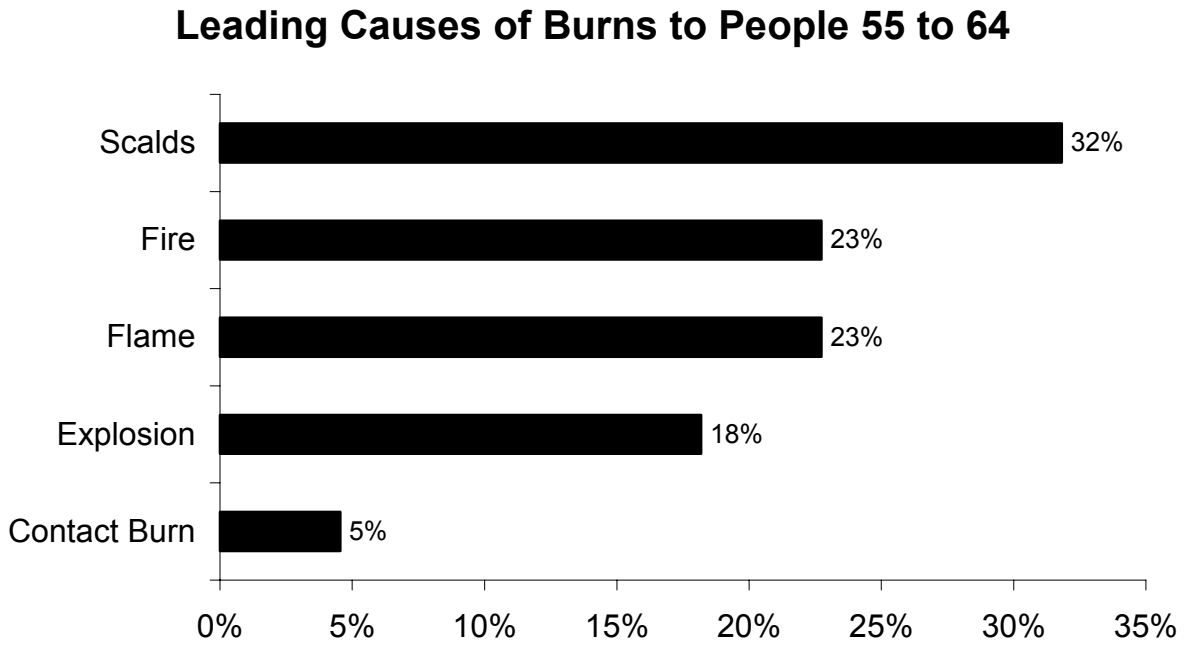
1/3 of Burn Injuries Were Scalds
Scalds were the leading cause of burn injuries to this age group. Seven, or 32%, of the burn injuries incurred by people between the ages of 55 and 64 were scalds. These scald burns included three from hot tap water, and one each from cooking grease, a water heater, cooking liquids, and a car radiator.

Flame burns accounted for five, or 23%, of the injuries to this age group. Three of the burns occurred when the victims' clothing ignited while cooking, one involved smoking in bed, and one involved an unspecified incident.

Fires also caused five, or 23%, of the burn injuries to this age group. Five people in this age group were burned in three house fires, and one camp or bon fire.

Four victims, accounting for 18% of the injuries to people between the ages of 55 and 64, received their injuries in explosions. Three of these explosions involved propane and the fourth involved a gas stove.

One victim received a contact burn from a stove accounting for 5% of the burn injuries to adults between the ages of 55 and 64.



Over 65

38 Burn Victims Over 65
Thirty-eight, or 11%, of the burn victims in 2001 were over 65 years old. Eleven were between 65 and 74; 18 were between 75 and 84; and nine were over 85 years old. Seventeen (17), or 45% of the victims were male, and 21, or 55%, were female. These percentages are very consistent with those from 2000. Older adults represent 14% of the total Massachusetts population but only 11% of the burn injuries in 2001.

Flame Burns Are the Leading Cause of Burns to Older Adults
Sixteen (16), or 42%, of the burn injuries to people over the age of 65 can be attributed to flame burns. Seven of the burn injuries were attributed to cooking; five were from smoking; another,

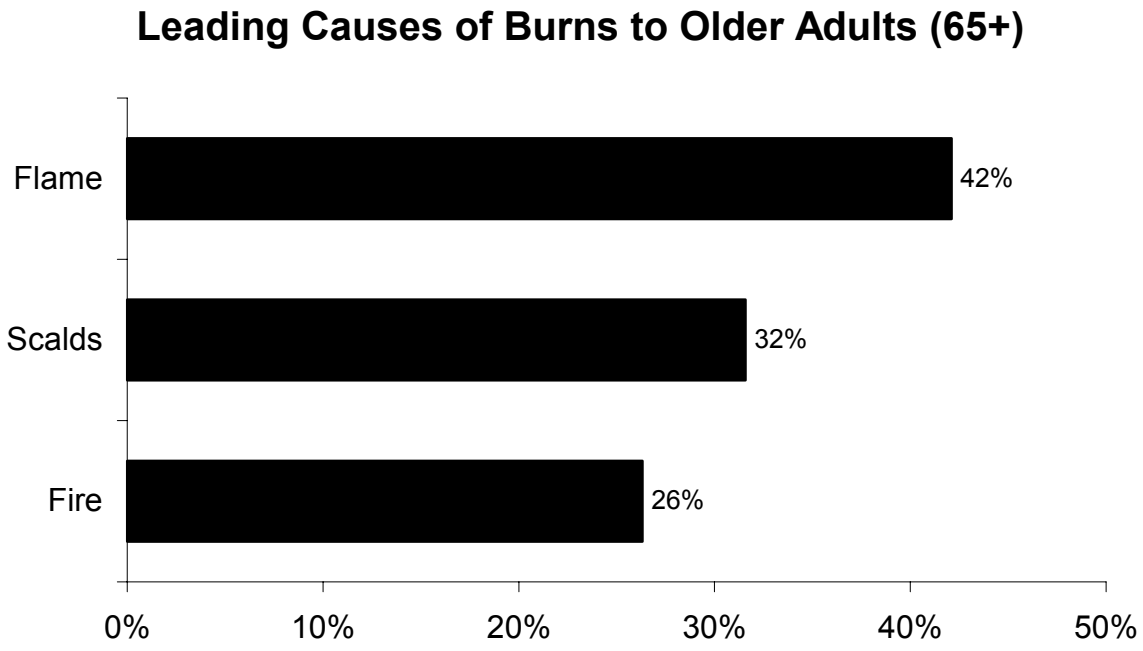
one from a candle igniting the victim's clothing, one from flammable material; another from an unspecified clothing ignition; and one from an unspecified ignition source.

Of the cooking-related burns, five of the seven burns were from clothing ignitions while cooking and two were from cooking in general. Of the smoking-related burns, three of the five injuries were from clothing ignitions while smoking; and two were from smoking in bed.

Clothing Ignitions Cause ¼ of Burns To Older Adults
Clothing ignitions to older adults has consistently been an issue. During 2001, 10, or 26%, of the burn injuries to those victims over the age of 65 were due to clothing ignitions. These types of injuries accounted for 3% of the total 354 burn injuries reported in Massachusetts in 2001.

Twelve (12), or 32%, of the burn injuries to these older adults were due to scalds. Six of these burn injuries were caused by hot tap water, three from hot beverages, two by cooking, and one from cooking grease.

Fire was the cause of ten, or 26%, of the injuries to adults over the age of 65. Nine house fires and one motor vehicle fire accounted for all ten fire-related burn injuries. Three of these fires were cause by smoking, while the other two were caused by candles.



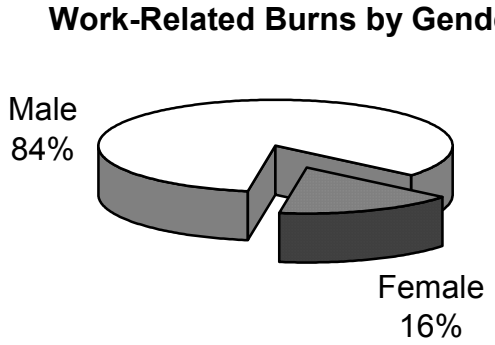
According to the Burn Awareness Coalition, smoking when tired, drinking alcohol or taking medications which can cause drowsiness, wearing loose fitting clothing while cooking, kitchen fires from unattended cooking, and grease fires on the stove top are leading causes of burn injuries to older adults. During 2001, cooking and smoking accounted for 16, or 42% of the reported burn injuries in Massachusetts incurred by older adults.

Safety Tips

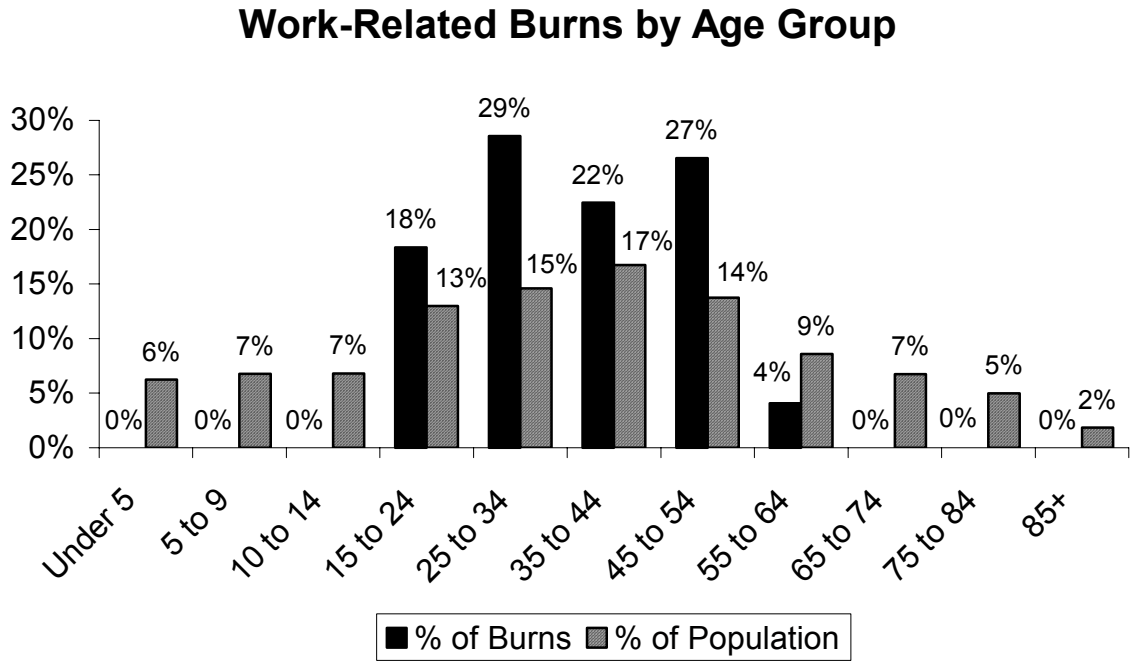
- Do not smoke when you are tired, drinking alcohol or taking medications, which make you drowsy. If you must smoke, make sure there are working smoke detectors in the immediate vicinity.
- Wear clothes with tight fitting sleeves and watch for clothes touching elements on the stove.
- Do not use a cooking stove for heating purposes or for drying clothes.
- Never leave food that is cooking unattended. Set a kitchen timer to remind you to turn off the burners and/or the oven. If you must leave the kitchen, take a wooden spoon or potholder as a reminder that you have left something unattended on the stove.
- Keep stove surfaces clean of built up grease.
- Do not attempt to lift or carry heavy pots of hot liquid or food.
- Cook with the pot and pan handles turned in.
- If cooking with only one or two burners, use the back burners first.

Work-Related Burn Injuries

14% of Reported Burns Occurred at Work
Massachusetts hospitals indicated that 49, or 14%, of the 354 burn injuries reported in 2001 occurred while the victim was at work. Men were much more likely to be burned while working than women. Forty-one (41) men, 84%, and eight women, 16%, were burned at work in 2001. These figures are very similar to the figures from 2000.



96% of Work-Related Burns Are Incurred by People Between 15 and 54
Nine (9), or 18%, of the 49 work-related victims where age was known were between 15 and 24 years of age. Fourteen (14), or 29%, of the victims were between 25 and 34 years of age; 11, or 22%, belonged to the 35 to 44 age group. Thirteen (13), or 27%, of work-related burn injuries were victims 45 to 54 years old. The oldest age group to have a work-related burn injury was the 55 to 64 group and they garnered two, or 4% of the burn injuries in the workplace. The youngest person to receive a work-related burn in Massachusetts in 2001 was a 17-year old male. The oldest victim to receive a work-related burn was a 59-year old woman.



Over 1/4 of Work-Related Burns Were Explosions
Fourteen (14), or 29%, of the 49 work-related injuries were explosions in 2001, including four from propane, two of which were burned in the same explosion; two from ignitable liquids; two from unspecified origins; and one each from a car part, an electrical accident, welding, gasoline, a cigarette lighter, and a flashburn.

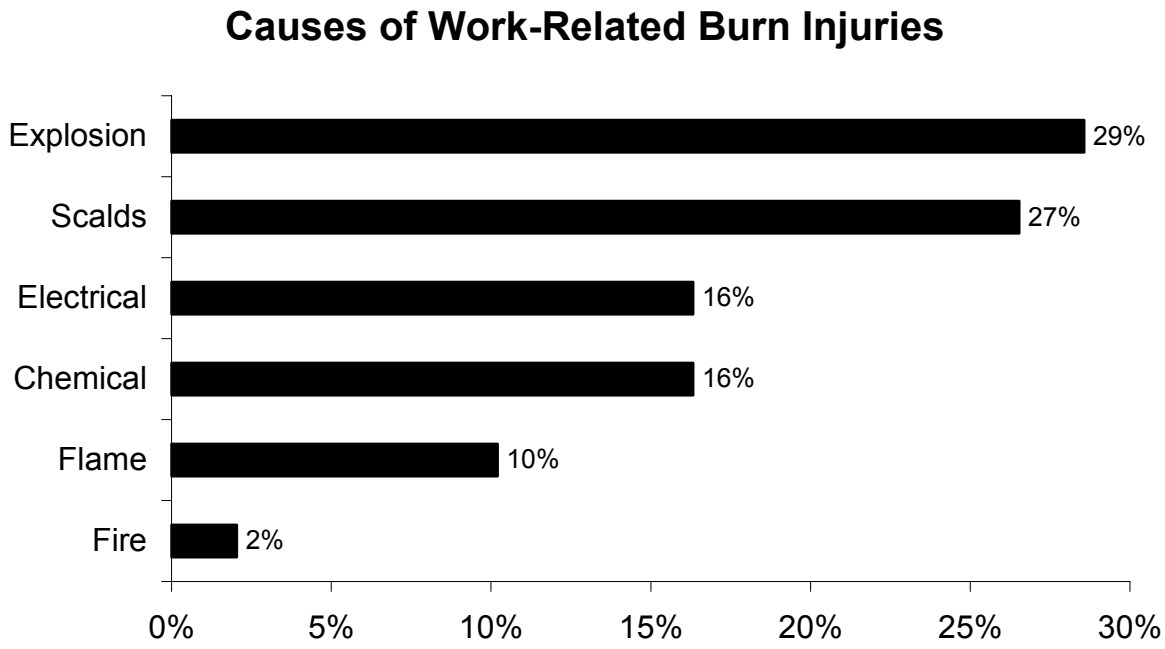
Scalds were the second leading cause of work-related burns in 2001. These thirteen injuries accounted for 27% of work-related burns. Five of the burn injuries were the results of unspecified cooking activities, three from steam, and one each from cooking liquids, one from hot cooking grease, one from a hot beverage, and one from contact with an unspecified hot object.

Electrical burns caused eight, or 16%, of work-related burn injuries in 2001. Three were from explosions, two were from electrocutions, another two from unspecified electrical accidents, and one was a flashburn.

Another eight, or 16%, of work-related burn injuries in 2001 were chemical burns.

Flame burns accounted for five, or 10%, of these work-related burns. Each flame burn injury was unique. One burn occurred when an aerosol can fell onto the grill that the victim was cooking on; one was a clothing ignition from cooking, another occurred when gasoline leaked from the gas tank on a car that the mechanic was working on and another heat source ignited the gas vapors; another was from a pizza oven; and one flame burn injury was incurred while the victim was cleaning a propane tank and a nearby forklift was started which ignited the propane fumes.

Another 2% of the work-related burns involved a flammable gas fire of unspecified type.



Burn Injury Reports by Hospital

Fifty-one (51) out of the 97 acute care health care facilities in Massachusetts submitted a total of 382 burn injury reports for 354 victims to the Massachusetts Burn Injury Reporting System (M-BIRS). Some individuals were treated at more than one hospital, resulting in more burn reports than total victims. For information on the number of burn reports submitted by each hospital, please refer to the table *Number of Reported Burn Injuries Per Hospital* in the Appendix.

Law Requires Hospitals to Report Burn Injuries Over 5% of the Body
Massachusetts General Law (MGL) Chapter 112, Section 12A requires all physicians and medical treatment facilities to immediately report treatment of every burn injury extending to 5% or more of a person's body surface area to the State Fire Marshal and to the police department in the community in which the burn occurred. Some hospitals, particularly Holy Family in Methuen report all burns, even the ones that do not meet the 5% threshold.

Hospitals May Fax Reports or Call and Submit Written Report
Health care facilities now have a choice about how to report burn injuries. If they choose to do so, health care providers may now fax their burn injury reports to the State Fire Marshal at the Department of Fire Services, (978) 567-3199. A completed transmission will satisfy both the telephone and written notification provisions of the law. Hospitals not opting for the fax report method must report burn injuries by telephone at (800) 475-3443 and submit a written report.

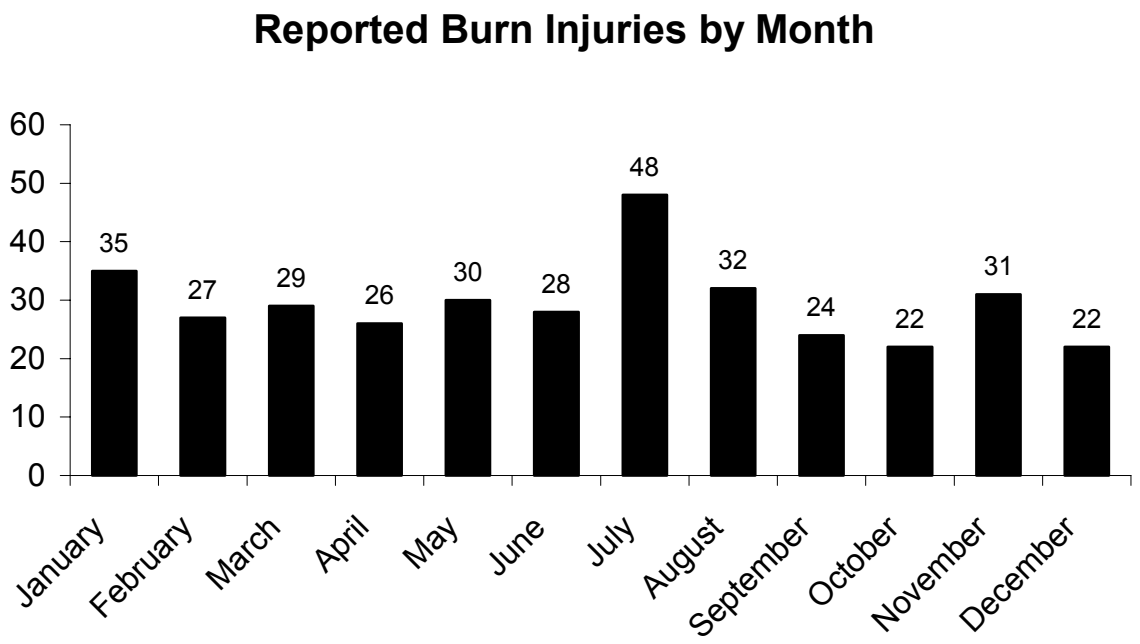
Although M-BIRS was instituted under the Department of Public Safety in June of 1984, Massachusetts hospitals have been required to report burn injuries to a government agency since 1973. M-BIRS, along with the Office of the State Fire Marshal, was carried over to the newly created Department of Fire Services in 1996. It remains a joint program of the Department of Fire Services and the Massachusetts Department of Public Health.

M-BIRS Has Two Main Purposes — Identifying Arsonists and Burn Prevention
Data collected by the Massachusetts Burn Injury Reporting System is used in several ways. Investigators use the data to determine if an arsonist was treated for a burn that resulted from an attempt to illegally burn a building or vehicle. If these burns are not reported promptly, arsonists may continue to light fires that threaten life and property. Our data has also been used to identify problems that need to be addressed by public education or regulation and to develop appropriate strategies to deal with these problems. We need to know what type of activity injures whom, if the injuries are seasonal, and how old the victims are, to develop and implement effective prevention programs. We appreciate the efforts of the many dedicated doctors, nurses and clerical personnel who report the burn injuries promptly and completely. They make the program work.

Burn Injuries by Month

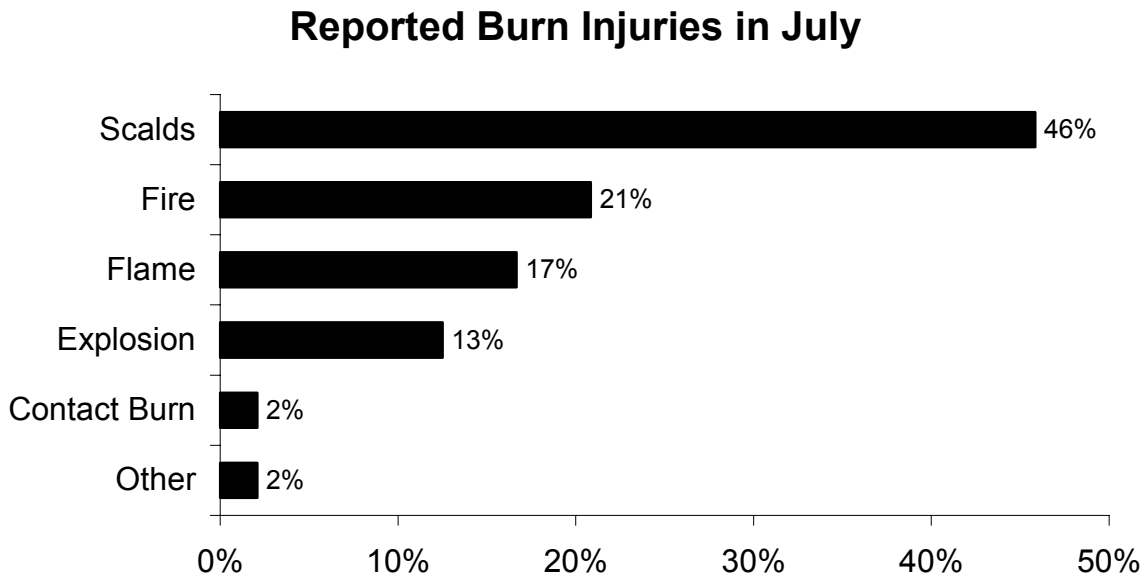
Average of 30 Burns a Month
An average of 30 burns was reported during each month of 2001, from a low of 22 in October and December to a high of 48 in July. This average is down from 39 burns per month in 2000 and 38 burns per month in 1999.

Scalds caused the most burn injuries during every month of the year except April and October. In April flame burns caused the most injuries and in October flame burns tied scalds as the type of burn causing the most injuries. Spilled hot beverages, cooking liquids, hot tap water, cooking grease, steam and overheated car radiators cause scalds.



July Peak Month for Burns
July was the peak month for burns in 2001. Although there were no reported fireworks injuries, scalds were the leading cause of burn injuries in July. Scalds accounted for 22, or 46% of the burns in July, 2001. Of these 22 scalds, hot beverages caused 12, or 55%, of scald burn injuries during July, 2001. Burns from cooking liquids caused four, or 18%, of the scald burn injuries whereas hot tap water burns accounted for three, or 14%, of the scald burn injuries. Except for two fire-related burns due to clothing ignitions, every other burn injury was incurred in a different manner.

The following chart indicates the leading causes of burn injuries reported in July, 2001.



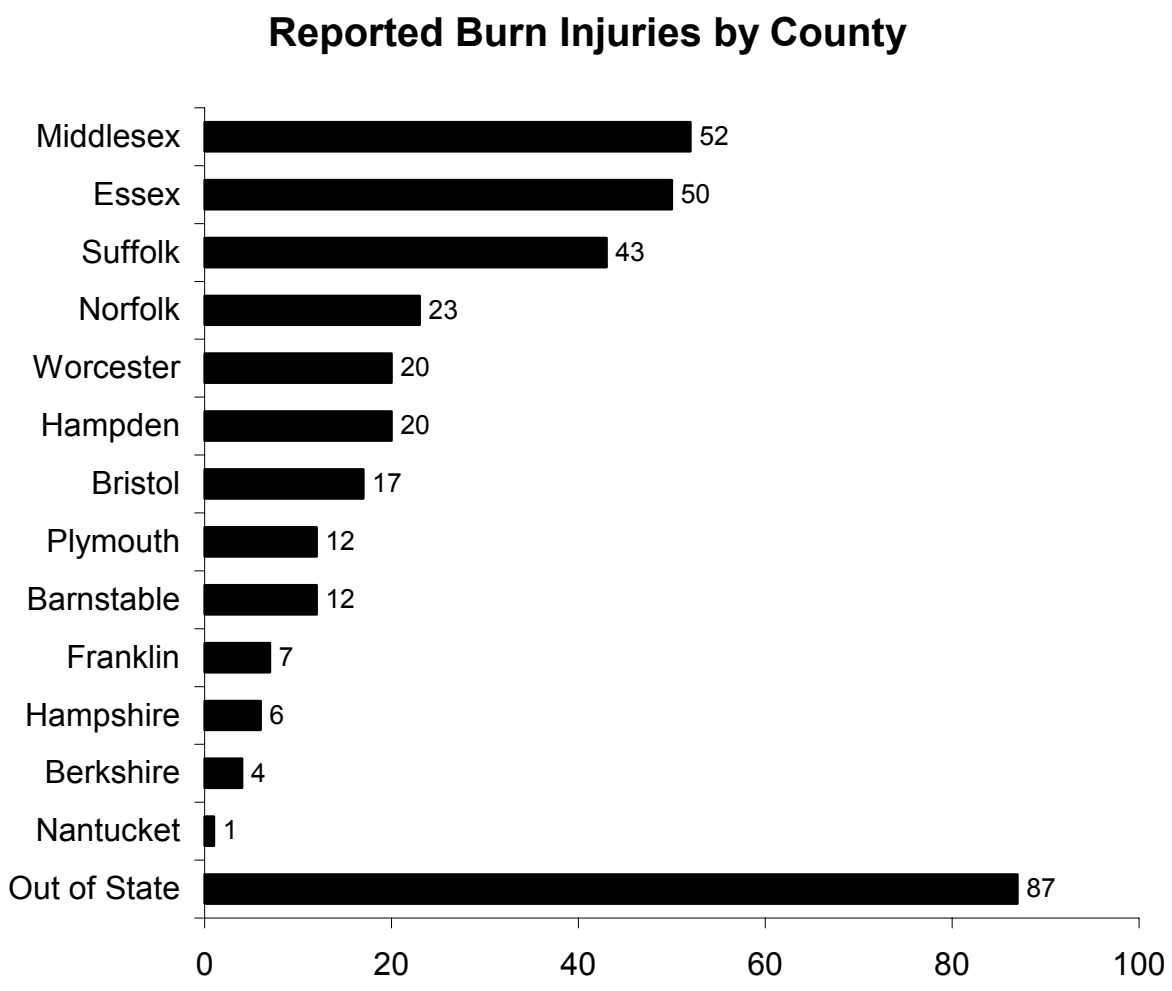
For more information, please refer to the table *Causes of Burn Injuries by Month* in the Appendix.

Geographical Demographics

Massachusetts Burn Victims from 130 Cities and Towns
Massachusetts medical facilities treated 267 residents of 130 Massachusetts cities and towns. Burn victims came from every county in the Commonwealth. The largest numbers of reported burn injuries were incurred by residents of Essex, Middlesex and Suffolk counties. Two Essex County hospitals report all of their burns, including those that are less than 5% of the body surface area. This may explain why the numbers for Essex County are so high. It also appears that some large Boston hospitals (Suffolk County) may have under reported the burns they treated.

Eighty-seven (87) burn victims from out of state received treatment at Massachusetts facilities. Some of the people were injured while vacationing here; others came to Massachusetts specifically for the specialized treatment of burn injuries that is available in the Commonwealth.

For information on the number of burn victims from each Massachusetts community, please refer to the table *Burn Injuries by Victim's Community* in the Appendix.



2001 Appendix

* Italicized names are sub-categories for the headings listed above them.

2001 Appendix

* Italicized names are sub-categories for the headings listed above them.

Specific Causes of Burn Injuries

Cause	# of Burns	% of Burns
Scalds	**143**	**40.4%**
Hot Beverages	61	17.2%
Hot Tap Water	34	9.6%
Cooking Liquids	24	6.8%
Cooking Grease	10	2.8%
Car Radiator	6	1.7%
Steam	3	0.8%
Heater	2	0.6%
Assault	1	0.3%
Contact	1	0.3%
Microwave Liquid	1	0.3%
Flame Burns	**72**	**20.3%**
Cooking/Clothes Ign.	12	3.4%
Cooking Liquids	8	2.3%
Gasoline	5	1.4%
Smoking in Bed	5	1.4%
Smoking/Clothes Ign.	4	1.1%
Aerosol Can	3	0.8%
Candle	3	0.8%
Child w/Gasoline	3	0.8%
Self-Immolation	3	0.8%
Unspecified	3	0.8%
Alcohol	2	0.6%
Candle/Clothes Ign.	2	0.6%
Cooking Grease	2	0.6%
Ignitable Liquids	2	0.6%
Cigarette Lighter	2	0.6%
Assault	1	0.3%
Charcoal Barbecue	1	0.3%
Chemical	1	0.3%
Child/Lighter/Clothes	1	0.3%
Child w/Matches	1	0.3%
Clothing Ignition	1	0.3%
Flammable Materials	1	0.1%
Heater	1	0.3%
Lawnmower	1	0.3%
Oven	1	0.3%
Propane	1	0.3%
Smoking	1	0.3%

Cause	# of Burns	% of Burns
Fires	**57**	**16.1%**
House Fires	24	6.8%
House Fire	*5*	*1.4%*
Smoking	*5*	*1.4%*
Candle	*3*	*0.8%*
Embers	*2*	*0.6%*
Arson	*1*	*0.3%*
Cooking	*1*	*0.3%*
Cooking/Clothes Ign.	*1*	*0.3%*
Gasoline	*1*	*0.3%*
Combustible/Heater	*1*	*0.3%*
Heat/Spark	*1*	*0.3%*
Propane	*1*	*0.3%*
Smoking in Bed	*1*	*0.3%*
Woodstove	*1*	*0.3%*
Motor Vehicle Fires	15	4.2%
MVA	*8*	*2.3%*
Airplane Crash	*1*	*0.3%*
Car Part	*1*	*0.3%*
Flammable Gas	*1*	*0.3%*
Gasoline	*1*	*0.3%*
Combustible/Heater	*1*	*0.3%*
Heat/Spark	*1*	*0.3%*
Mechanical	*1*	*0.3%*
Camp or Bon Fires	9	2.5%
Clothing Ignition	*3*	*0.8%*
Bon Fire	*2*	*0.6%*
Brush/Clothes Ign.	*1*	*0.3%*
Embers	*1*	*0.3%*
Fuel	*1*	*0.3%*
Ignitable Liquids	*1*	*0.3%*
Brush Fires	5	1.4%
Child w/Gasoline	*2*	*0.6%*
Embers	*2*	*0.6%*
Ignitable Liquids	*1*	*0.3%*
Fires/Not Specified	4	1.1%
Cigarette	*2*	*0.6%*
Alcohol	*1*	*0.3%*
Gasoline	*1*	*0.3%*

Cause	# of Burns	% of Burns
Explosions	**37**	**10.5%**
Propane	11	3.1%
Gasoline	5	1.4%
Car Part	3	0.8%
Ignitable Liquid	3	0.8%
Unspecified	2	0.6%
Welding	2	0.6%
Chemical	1	0.3%
Child w/Gasoline	1	0.3%
Child Play w/Fire	1	0.3%
Electrical	1	0.3%
Engine	1	0.3%
Flammable Materials	1	0.3%
Flashburn	1	0.3%
Gas Stove	1	0.3%
Heater/Central	1	0.3%
Cigarette Lighter	1	0.3%
Model Rocket	1	0.3%

Cause	# of Burns	% of Burns
Contact Burns	**19**	**5.4%**
Unspecified	3	0.8%
Stove	3	0.8%
Pavement Burns	2	0.6%
Candle	1	0.3%
Car Surfing	1	0.3%
Curling Iron	1	0.3%
Electric Blanket	1	0.3%
Embers	1	0.3%
Clothes Iron	1	0.3%
Pipe	1	0.3%
Portable Heater	1	0.3%
Radiator	1	0.3%
Electrical	**8**	**2.3%**
Explosion	3	0.8%
Electrocution	2	0.6%
Unspecified	2	0.6%
Flashburn	1	0.3%
Other Burn Injuries	**18**	**5.4%**
Chemical	15	4.2%
Unspecified	3	0.8%

Causes of Burn Injuries by Age

UNDER 5	73	20.6%
Cause	**# of Burns**	**% By Age**
Scalds	**62**	**84.9%**
Beverages	44	60.3%
Hot Tap Water	13	17.8%
Cooking Liquids	4	5.5%
Microwave Liquids	1	1.4%
Fire	**5**	**6.8%**
House Fires	2	2.7%
House Fire	*1*	*1.4%*
Candle	*1*	*1.4%*
Camp or Bon Fires	2	2.7%
Clothing Ignition	*2*	*2.7%*
Vehicle Fires	1	1.4%
Mechanical	*1*	*1.4%*
Contact	**4**	**5.5%**
Contact	1	1.4%
Cooking Liquid	1	1.4%
Pavement Burns	1	1.4%
Pipe	1	1.4%
Flame	**2**	**2.7%**
Child w/Matches	1	1.4%
Cooking Liquids	1	1.4%

AGES 5 TO 9	21	5.9%
Cause	**# of Burns**	**% By Age**
Scalds	**10**	**47.6%**
Beverages	5	23.8%
Cooking Liquids	4	19.0%
Hot Tap Water	1	4.8%
Flame	**4**	**19.0%**
Child w/Gasoline	1	4.8%
Child/Lighter/Clths	1	4.8%
Heater	1	4.8%
Cigarette Lighter	1	4.8%
Contact	**3**	**14.3%**
Curling Iron	1	4.8%
Embers	1	4.8%
Pavement Burns	1	4.8%
Other	**2**	**9.5%**
Chemical	2	9.5%
Explosion	**1**	**4.8%**
Propane	1	4.8%
Fires	**1**	**4.8%**
House Fires	1	4.8%

AGES 10 TO 14	**21**	**5.9%**
Cause	**# of Burns**	**% By Age**
Flame	**11**	**52.4%**
Alcohol	2	9.5%
Child w/Gasoline	2	9.5%
Gasoline	2	9.5%
Aerosol Can	1	4.8%
Charcoal Barbecue	1	4.8%
Cooking/Clothes Ign.	1	4.8%
Flammable Materials	1	4.8%
Fire	**4**	**19.0%**
Camp or Bonfires	2	9.5%
Bonfire	*1*	*4.8%*
Clothing Ignition	*1*	*4.8%*
Brush Fires	1	4.8%
Child w/Gasoline	*1*	*4.8%*
Vehicle Fires	1	4.8%
MVA	*1*	*4.8%*
Explosion	**3**	**14.3%**
Chemical	1	4.8%
Child Play w/Fire	1	4.8%
Propane	1	4.8%
Scalds	**3**	**14.3%**
Beverages	1	4.8%
Cooking Grease	1	4.8%
Hot Tap Water	1	4.8%

AGES 15 TO 24	**46**	**13.0%**
Cause	**# of Burns**	**% By Age**
Scalds	**14**	**30.4%**
Cooking Liquids	8	17.4%
Beverages	3	6.5%
Car Radiator	2	4.3%
Cooking Grease	1	2.2%

Cause	**# of Burns**	**% By Age**
Fire	**13**	**28.3%**
Vehicle Fires	6	13.0%
MVA	*4*	*8.7%*
Car Part	*1*	*2.2%*
Gasoline	*1*	*2.2%*
Brush Fires	2	4.3%
Child w/Gasoline	*1*	*2.2%*
Ignitable Liquids	*1*	*2.2%*
Camp or Bon Fire	2	4.3%
Bonfire	*1*	*2.2%*
Fuel	*1*	*2.2%*
Fire/Not Specified	2	4.3%
Alcohol	*1*	*2.2%*
Gasoline	*1*	*2.2%*
House Fire	1	2.2%
Cooking/Clothes Ign.	*1*	*2.2%*
Flame	**9**	**19.6%**
Cooking/Clothes Ign.	2	4.3%
Candles	1	2.2%
Cooking Liquid	1	2.2%
Cooking Grease	1	2.2%
Gasoline	1	2.2%
Ignitable Liquids	1	2.2%
Propane	1	2.2%
Self-Immolation	1	2.2%
Explosion	**5**	**10.9%**
Car Part	1	2.2%
Flashburn	1	2.2%
Gasoline	1	2.2%
Model Rocket	1	2.2%
Unspecified	1	2.2%
Contact	**3**	**6.5%**
Car Surfing	1	2.2%
Clothes Iron	1	2.2%
Unspecified	1	2.2
Other	**2**	**4.3%**
Chemical	1	2.2%
Unspecified	1	2.2%

AGES 25 TO 34	45	12.7%
Cause	**# of Burns**	**% By Age**
Scalds	**13**	**28.9%**
Cooking Grease	4	8.9%
Hot Tap Water	4	8.9%
Car Radiator	2	4.4%
Beverages	1	2.2%
Cooking Liquids	1	2.2%
Steam	1	2.2%
Explosions	**10**	**22.2%**
Propane	3	6.7%
Gasoline	2	4.4%
Unspecified	2	4.4%
Car Part	1	2.2%
Flammable Materials	1	2.2%
Welding	1	2.2%
Fire	**7**	**15.6%**
Vehicle Fires	3	6.7%
Flammable Gas	*1*	*2.2%*
Heat	*1*	*2.2%*
MVA	*1*	*2.2%*
House Fires	2	4.4%
Smoking	*1*	*2.2%*
House Fires	*1*	*2.2%*
Brush Fire	1	2.2%
Embers	*1*	*2.2%*
Camp or Bonfire	1	2.2%
Embers	*1*	*2.2%*

Cause	**# of Burns**	**% By Age**
Flame	**6**	**13.3%**
Aerosol Can	1	2.2%
Candle	1	2.2%
Cooking Grease	1	2.2%
Cigarette Lighter	1	2.2%
Self-Immolation	1	2.2%
Smoking	1	2.2%
Other	**5**	**11.1%**
Chemical	4	8.9%
Unspecified	1	2.2%
Electrical	**3**	**6.7%**
Electrocution	1	2.2%
Explosion	1	2.2%
Unspecified	1	2.2%
Contact	**1**	**2.2%**
Candle	1	2.2%

AGES 35 TO 44	55	15.5%
Cause	**# of Burns**	**% By Age**
Flame	**13**	**23.6%**
Cooking Liquids	3	5.5%
Gasoline	2	3.6%
Smoking in Bed	2	3.6%
Candle/Clothes Ign.	1	1.8%
Chemical	1	1.8%
Cooking/Clothes Ign.	1	1.8%
Ignitable Liquids	1	1.8%
Self-Immolation	1	1.8%
Smoking/Clothes Ign.	1	1.8%
Scalds	**13**	**23.6%**
Hot Tap Water	5	9.1%
Cooking Grease	2	3.6%
Assault	1	1.8%
Beverage	1	1.8%
Car Radiator	1	1.8%
Contact	1	1.8%
Cooking Liquids	1	1.8%
Steam	1	1.8%
Fire	**10**	**18.2%**
House Fires	6	10.9%
Smoking	*2*	*3.6%*
Cooking Liquids	*1*	*1.8%*
Embers	*1*	*1.8%*
Heat	*1*	*1.8%*
House Fire	*1*	*1.8%*
Vehicle Fires	2	3.6%
Heat/Spark	*1*	*1.8%*
MVA	*1*	*1.8%*
Camp or Bon Fires	1	1.8%
Ignitable Liquids	*1*	*1.8%*
Fire/Not Specified	1	1.8%
Cigarette	*1*	*1.8%*

Cause	**# of Burns**	**% By Age**
Explosions	**8**	**14.5%**
Ignitable Liquids	3	5.5%
Gasoline	2	3.6%
Car Part	1	1.8%
Electrical	1	1.8%
Propane	1	1.8%
Contact	**5**	**9.1%**
Stove	2	3.6%
Contact	1	1.8%
Electrical Blanket	1	1.8%
Portable Heater	1	1.8%
Electrical	**3**	**5.5%**
Explosion	2	3.6%
Flashburn	1	1.8%
Other	**3**	**5.5%**
Chemical	2	3.6%
Unspecified	1	1.8%

AGES 45 TO 54	33	9.3%
Cause	**# of Burns**	**% By Age**
Scalds	**9**	**27.3%**
Beverages	3	9.1%
Cooking Liquids	3	9.1%
Heater/Central	1	3.0%
Steam	1	3.0%
Hot Tap Water	1	3.0%
Explosions	**6**	**18.2%**
Propane	2	6.1%
Engine	1	3.0%
Heat/Central	1	3.0%
Cigarette Lighter	1	3.0%
Welding	1	3.0%
Flame	**6**	**18.2%**
Aerosol Can	1	3.0%
Assault	1	3.0%
Candle	1	3.0%
Lawnmower	1	3.0%
Oven	1	3.0%
Unspecified	1	3.0%
Other	**6**	**18.2%**
Chemical	6	18.2%
Contact	**2**	**6.1%**
Cooking Liquid	1	3.0%
Radiator	1	3.0%
Electrical	**2**	**6.1%**
Electrical	1	3.0%
Electrocution	1	3.0%
Fire	**2**	**6.1%**
Brush Fires	1	3.0%
Embers	*1*	*3.0%*
Fire/Not Specified	1	3.0%
Cigarette	*1*	*3.0%*

AGES 55 TO 64	22	6.2%
Cause	**# of Burns**	**% By Age**
Scalds	**7**	**31.8%**
Hot Tap Water	3	13.6%
Car Radiator	1	4.5%
Cooking Grease	1	4.5%
Cooking Liquids	1	4.5%
Hot Water Heater	1	4.5%
Fires	**5**	**22.7%**
House Fires	3	13.6%
Embers	*1*	*4.5%*
Heat/Spark	*1*	*4.5%*
Woodstove	*1*	*4.5%*
Camp or Bon Fires	1	4.5%
Brush/Clothes Ign.	*1*	*4.5%*
Vehicle Fires	1	4.5%
Airplane Crash	*1*	*4.5%*
Flame	**5**	**22.7%**
Cooking/Clothes Ign.	3	13.6%
Smoking in Bed	1	4.5%
Unspecified	1	4.5%
Explosion	**4**	**18.2%**
Propane	3	13.6%
Gas Stove	1	4.5%
Contact	**1**	**4.5%**
Stove	1	4.5%

AGES 65 TO 74	11	3.1%
Cause	**# of Burns**	**% By Age**
Flame	**6**	**54.5%**
Cooking/Clothes Ign.	2	18.2%
Smoking in Bed	2	18.2%
Candle/Clothes Ign.	1	9.1%
Cooking Liquids	1	9.1%
Fire	**3**	**27.3%**
House Fires	3	27.3%
House Fire	*1*	*9.1%*
Propane	*1*	*9.1%*
Smoking in Bed	*1*	*9.1%*
Scalds	**2**	**18.2%**
Beverages	1	9.1%
Hot Tap Water	1	9.1%

AGES 75 TO 84	18	5.1%
Cause	**# of Burns**	**% By Age**
Flame	**8**	44.4**%**
Smoking/Clothes Ign.	3	16.7%
Cooking/Clothes Ign.	2	11.1%
Cooking Liquids	1	5.6%
Flammable Materials	1	5.6%
Unspecified	1	5.6%
Fire	**5**	**27.8%**
House Fires	4	22.2%
Arson	*1*	*5.6%*
Candle	*1*	*5.6%*
Gasoline	*1*	*5.6%*
Smoking	*1*	*5.6%*
Vehicle Fires	1	5.6%
MVA	*1*	*5.6%*
Scalds	**5**	**27.8%**
Hot Tap Water	2	11.1%
Beverages	1	5.6%
Cooking Liquids	1	5.6%
Cooking Grease	1	5.6%

AGES 85+	9	2.5%
Cause	**# of Burns**	**% By Age**
Scalds	**5**	**55.6%**
Hot Tap Water	3	33.3%
Beverages	1	11.1%
Cooking Liquids	1	11.1%
Fire	**2**	**22.2%**
House Fires	2	22.2%
Candle	*1*	*11.1%*
Smoking	*1*	*11.1%*
Flame	**2**	**22.2%**
Cooking/Clothes Ign.	1	11.1%
Clothing Ignition	1	11.1%

Causes of Burn Injuries by Month

JANUARY	35	9.9%
Cause	# of Burns	% By Month
Scalds	**14**	**40.0%**
Beverages	6	17.1%
Cooking Liquids	3	8.6%
Hot Tap Water	3	8.6%
Cooking Grease	2	5.7%
Fire	**6**	**17.1%**
House Fires	3	8.6%
Smoking	*2*	*5.7%*
House Fire	*1*	*2.9%*
Vehicle Fires	3	8.6%
MVA	*2*	*5.7%*
Flammable Gas	*1*	*2.9%*
Flame	**5**	**14.3%**
Aerosol Can	1	2.9%
Cooking/Clothes Ign.	1	2.9%
Cooking Liquids	1	2.9%
Gasoline	1	2.9%
Smoking/Clothes Ign.	1	2.9%
Contact	**3**	**8.6%**
Electric Blanket	1	2.9%
Pipe	1	2.9%
Portable Heater	1	2.9%
Electrical	**3**	**8.6%**
Explosion	3	8.6%
Explosion	**3**	**8.6%**
Gas Stove	1	2.9%
Cigarette Lighter	1	2.9%
Propane	1	2.9%
Other	**1**	**2.9%**
Chemical	1	2.9%

FEBRUARY	27	7.6%
Cause	# of Burns	% By Month
Scalds	**16**	**59.3%**
Beverages	8	29.6%
Hot Tap Water	5	18.5%
Cooking Liquids	2	7.4%
Steam	1	3.7%
Flame	**5**	**18.5%**
Cooking/Clothes Ign.	2	7.4%
Candle	1	3.7%
Clothing Ignition	1	3.7%
Cooking Liquids	1	3.7%
Other	**4**	**14.8%**
Chemical	4	14.8%
Fire	**1**	**3.7%**
Vehicle Fires	1	3.7%
MVA	*1*	*3.7%*

MARCH	**29**	**8.2%**
Cause	**# of Burns**	**% By Month**
Scalds	**12**	**41.4%**
Beverages	4	13.8%
Hot Tap Water	4	13.8%
Assault	1	3.4%
Cooking Liquids	1	3.4%
Cooking Grease	1	3.4%
Steam	1	3.4%
Fire	**7**	**24.1%**
House Fires	4	13.8%
Smoking	*2*	*6.9%*
Candle	*1*	*3.5%*
Embers	*1*	*3.5%*
Vehicle Fires	3	10.3%
Gasoline	*1*	*3.5%*
Mechanical	*1*	*3.5%*
MVA	*1*	*3.5%*
Flame	**7**	**24.1%**
Cooking/Clothes Ign.	2	6.9%
Candle/Clothes Ign.	1	3.5%
Child w/Matches	1	3.5%
Cooking Liquids	1	3.5%
Cigarette Lighter	1	3.5%
Smoking in Bed	1	3.5%
Explosion	**2**	**6.9%**
Propane	2	6.9%
Other	**1**	**3.5%**
Chemical	1	3.5%

APRIL	**26**	**7.3%**
Cause	**# of Burns**	**% By Month**
Flame	**10**	**38.5%**
Unspecified	3	11.5%
Cooking Liquids	2	7.7%
Gasoline	2	7.7%
Barbecue	1	3.8%
Cooking/Clothes Ign.	1	3.8%
Self-immolation	1	3.8%
Explosion	**5**	**19.2%**
Propane	3	11.5%
Flammables	1	3.8%
Gasoline	1	3.8%
Fire	**3**	**11.5%**
Brush Fires	2	7.7%
Embers	*2*	*7.7%*
House Fires	1	3.8%
Heat/Spark	*1*	*3.8%*
Other	**3**	**11.5%**
Chemical	2	7.7%
Unspecified	1	3.8%
Scalds	**3**	**11.5%**
Hot Tap Water	2	7.7%
Beverages	1	3.8%
Contact	**1**	**3.8%**
Car Surfing	1	3.8%
Electrical	**1**	**3.8%**
Electrocution	1	3.8%

MAY	**30**	**8.5%**
Cause	**# of Burns**	**% By Month**
Scalds	**11**	**36.7%**
Cooking Liquids	3	10.0%
Beverages	2	6.7%
Cooking Grease	2	6.7%
Hot Tap Water	2	6.7%
Car Radiator	1	3.3%
Steam	1	3.3%
Flame	**6**	**20.0%**
Cooking Liquids	2	6.7%
Candle	1	3.3%
Cooking/Clothes Ign.	1	3.3%
Flammables	1	3.3%
Gasoline	1	3.3%
Fire	**5**	**16.7%**
Vehicle Fires	2	6.7%
Heat	*1*	*3.3%*
MVA	*1*	*3.3%*
Brush Fires	1	6.5%
Ignitable Liquids	*1*	*3.3%*
Camp or Bonfires	1	3.3%
Clothing Ignition	*1*	*3.3%*
House Fires	2	3.3%
Heat	*1*	*3.3%*
Explosion	**4**	**13.3%**
Unspecified	3	10.0%
Propane	1	3.3%
Contact	**2**	**6.7%**
Stove	2	6.7%
Other	**2**	**6.7%**
Chemical	2	6.7%

JUNE	**28**	**7.9%**
Cause	**# of Burns**	**% By Month**
Scalds	**12**	**42.9%**
Beverages	5	17.9%
Cooking Liquids	3	10.7%
Car Radiator	2	7.1%
Hot Tap Water	2	7.1%
Flame	**6**	**21.4%**
Assault	1	3.6%
Child w/Gasoline	1	3.6%
Cooking Liquids	1	3.6%
Cooking/Clothes Ign.	1	3.6%
Lawnmower	1	3.6%
Smoking in Bed	1	3.6%
Fire	**4**	**14.3%**
House Fires	2	7.1%
Arson	*1*	*3.6%*
Embers	*1*	*3.6%*
Camp or Bon Fires	1	3.6%
Embers	*1*	*3.6%*
Vehicle Fires	1	3.6%
Heat/Spark	*1*	*3.6%*
Contact	**2**	**7.1%**
Pavement Burns	1	3.6%
Stove	1	3.6%
Explosion	**2**	**7.1%**
Car Part	2	7.1%
Other	**2**	**7.1%**
Chemical	1	3.6%
Unspecified	1	3.6%

JULY	**48**	**13.6%**
Cause	**# of Burns**	**% By Month**
Scalds	**22**	**45.8%**
Beverages	12	25.0%
Cooking Liquids	4	8.3%
Hot Tap Water	3	6.3%
Car Radiator	1	2.1%
Cooking Grease	1	2.1%
Fire	**10**	**20.8%**
Camp or Bonfires	4	8.3%
Bonfire	*2*	*4.2%*
Clothing Ignition	*2*	*4.2%*
House Fires	3	6.3%
Cooking/Clothes Ign.	*1*	*2.1%*
Gasoline	*1*	*2.1%*
Smoking in Bed	*1*	*2.1%*
Brush Fires	2	4.2%
Child w/Gasoline	*2*	*4.2%*
Vehicle Fires	1	2.1%
Airplane Crash	*1*	*2.1%*
Flame	**8**	**16.7%**
Aerosol Can	1	2.1%
Alcohol	1	2.1%
Candle	1	2.1%
Child w/Gasoline	1	2.1%
Child/Lighter/Clothes	1	2.1%
Cigarette Lighter	1	2.1%
Smoking in Bed	1	2.1%
Smoking/Clothes Ign.	1	2.1%
Explosion	**6**	**12.5%**
Car Part	1	2.1%
Child/Play	1	2.1%
Engine	1	2.1%
Gasoline	1	2.1%
Model Rocket	1	2.1%
Propane	1	2.1%
Contact	**1**	**2.1%**
Embers	1	2.1%
Other	**1**	**2.1%**
Unspecified	1	2.1%

AUGUST	**32**	**9.0%**
Cause	**# of Burns**	**% By Month**
Scalds	**11**	**34.4%**
Beverages	6	18.8**%**
Cooking Grease	2	6.3%
Hot Tap Water	2	6.3%
Car Radiator	1	3.1%
Fire	**10**	**31.3%**
Fire/ Not Specified	4	12.5%
Cigarette	*2*	*6.3%*
Alcohol	*1*	*3.1%*
Gasoline	*1*	*3.1%*
Camp or Bonfires	3	9.4%
Brush/Clothes Ign.	*1*	*3.1%*
Fuel	*1*	*3.1%*
Ignitable Liquids	*1*	*3.1%*
House Fires	1	3.1&
Cooking Liquids	*1*	*3.1%*
Vehicle Fires	1	3.1%
Car Part	*1*	*3.1%*
Contact	**4**	**12.5%**
Unspecified	3	9.4%
Pavement Burns	1	3.1%
Explosion	**4**	**12.5%**
Chemical	1	3.1%
Flashburn	1	3.1%
Heat/Central	1	3.1%
Ignitable Liquids	1	3.1%
Electrical	**1**	**3.1%**
Electrocution	1	3.1%
Flame	**1**	**3.1%**
Chemical	1	3.1%

SEPTEMBER	**24**	**6.8%**
Cause	**# of Burns**	**% By Month**
Scalds	**12**	**54.2%**
Beverage	5	20.8%
Cooking Grease	2	8.3%
Cooking Liquids	2	8.3%
Car Radiator	1	4.2%
Heater	1	4.2%
Microwave Liquid	1	4.2%
Hot Tap Water	1	4.2%
Flame	**4**	**12.5%**
Child w/Gasoline	1	4.2%
Ignitable Liquids	1	4.2%
Smoking in Bed	1	4.2%
Smoking/Clothes Ign.	1	4.2%
Explosion	**3**	**12.5%**
Electrical	1	4.2%
Gasoline	1	4.2%
Ignitable Liquids	1	4.2%
Electrical	**2**	**8.3%**
Flashburn	1	4.2%
Unspecified	1	4.2%
Fire	**1**	**3.1%**
House Fire	1	4.2%
Other	**1**	**4.2%**
Chemical	1	4.2%

OCTOBER	**22**	**6.2%**
Cause	**# of Burns**	**% By Month**
Flame	**7**	**31.8%**
Cooking/Clothes Ign.	2	9.1%
Heater	1	4.5%
Ignitable Liquids	1	4.5%
Propane	1	4.5%
Self-Immolation	1	4.5%
Smoking/Clothes Ign.	1	4.5%
Scalds	**7**	**31.8%**
Hot Tap Water	4	18.2%
Cooking Liquids	2	9.1%
Beverages	1	4.5%
Contact	**2**	**9.1%**
Candle	1	4.5%
Cooking Liquids	1	4.5%
Explosion	**3**	**13.6%**
Propane	2	9.1%
Welding	1	4.5%
Fire	**2**	**9.1%**
House Fires	1	4.5%
Vehicle Fires	1	4.5%
MVA	*1*	*4.5%*
Other	**1**	**4.5%**
Chemical	1	4.5%

NOVEMBER	**31**	**8.8%**
Cause	**# of Burns**	**% By Month**
Scalds	**14**	**45.2%**
Beverages	8	25.8%
Cooking Liquids	3	9.7%
Hot Tap Water	2	6.5%
Heat/Central	1	3.2%
Flame	**8**	**25.8%**
Cooking Grease	2	6.5%
Aerosol Can	1	3.2%
Alcohol	1	3.2%
Cooking/Clothes Ign.	1	3.2%
Flammable Materials	1	3.2%
Gasoline	1	3.2%
Self-Immolation	1	3.2%
Explosion	**3**	**9.7%**
Gasoline	2	6.5%
Propane	1	3.2%
Fire	**3**	**9.7%**
House Fires	2	6.5%
House Fire	*2*	*6.5%*
Vehicle Fires	1	3.2%
MVA	*1*	*3.2%*
Contact	**2**	**6.5%**
Cooking Liquids	1	3.2%
Curling Iron	1	3.2%
Other	**1**	**3.2%**
Chemical	1	3.2%

DECEMBER	**22**	**6.2%**
Cause	**# of Burns**	**% By Month**
Scalds	**8**	**36.4%**
Hot Tap Water	4	18.2%
Beverages	3	13.6%
Cooking Liquids	1	4.5%
Flame	**5**	**22.7%**
Candle/Clothes Ign.	1	4.5%
Cooking/Clothes Ign.	1	4.5%
Oven	1	4.5%
Smoking in Bed	1	4.5%
Smoking	1	4.5%
Fire	**4**	**18.2%**
House Fires	4	18.2%
Candle	*2*	*9.1%*
Smoking	*1*	*4.5%*
Woodstove	*1*	*4.5%*
Contact	**2**	**9.1%**
Clothes Iron	1	4.5%
Radiator	1	4.5%
Explosion	**2**	**9.1%**
Ignitable Liquids	1	4.5%
Welding	1	4.5%
Electrical	**1**	**4.5%**
Unspecified	1	4.5%

Number of Reported Burns Per Hospital

Addison Gilbert Hospital	1
Anna Jaques Hospital	2
Baystate Medical Center	24
Berkshire Medical Center	2
Beth Israel Deaconess Medical Center	1
Brockton Hospital	2
Brigham & Women's Hospital	51
Cape Cod Hospital	7
Charlton Memorial Hospital	5
Clinton Hospital	3
Cooley Dickinson Hospital	1
Emerson Hospital	1
Fairhaven Hospital	1
Falmouth Hospital	5
Franklin Medical Center	7
Good Samaritan Medical Center	5
Henry Heywood Hospital	5
Hartford Hospital	1
Holy Family Hospital	21
Holyoke Hospital	2
Hubbard Hospital	1
Lawrence General Hospital	9
Leominster Hospital	3
Lowell General Hospital	2
Lowell Memorial	1
Massachusetts General Hospital	85
Melrose-Wakefield Hospital	1
Mercy Hospital	3
Merrimack Valley Hospital	3
Metro West Hospital	3
Milford-Whitinsville Hospital	3
Morton Hospital	1
Nantucket Cottage Hospital	2
Nashoba Hospital	1
North Shore Medical Center	1
Saints Memorial Medical Center	2
Salem Hospital	1
Shriners Burns Hospital	90
Somerville Hospital	1
South Shore Hospital	1
St. Anne’s Hospital	1
St. Luke's Hospital	4
Sturdy Memorial Medical Center	2
Tobey Hospital	1
UMass Medical Center Worcester	5
Unknown	1
Union Hospital	1
Martha’s Vineyard Hospital	1
Whidden Memorial Hospital	3
Winchester Hospital	1
Wing Memorial Hospital	1

Burn Injuries by Victim's Community

County	# of Burns
Barnstable	**12**
Barnstable	1
Bourne	2
Falmouth	3
Hyannis	2
Provincetown	1
Sandwich	2
Yarmouth	1
Berkshire	**4**
Egremont	1
Lenox	1
North Adams	2
Bristol	**17**
Attleboro	2
Dartmouth	1
Fall River	4
Freetown	1
New Bedford	4
Raynham	1
Taunton	3
Westport	1
Essex	**50**
Amesbury	1
Andover	1
Beverly	1
Danvers	1
Gloucester	2
Haverhill	7
Lawrence	10
Lynn	9
Methuen	9
Middleton	1
North Andover	1
Peabody	4
Salem	2
Saugus	1

County	# of Burns
Franklin	**7**
Charlemont	2
Deerfield	1
Greenfield	3
Warwick	1
Hampden	**20**
Chicopee	1
Holland	1
Holyoke	2
Longmeadow	1
Ludlow	1
Monson	2
Springfield	8
West Springfield	1
Westfield	2
Wilbraham	1
Hampshire	**6**
Amherst	1
Belchertown	1
Hatfield	1
Northampton	1
South Hadley	2
Middlesex	**52**
Arlington	1
Bedford	1
Belmont	3
Billerica	1
Cambridge	3
Chelmsford	1
Concord	1
Dracut	1
Everett	4
Littleton	1
Lowell	4
Malden	4
Maynard	1
Medford	5

County	# of Burns
Middlesex	**(con't)**
Natick	1
Newton	3
North Reading	2
Sherborn	1
Somerville	3
Stoneham	2
Tewksbury	1
Townsend	1
Wakefield	2
Waltham	1
Watertown	2
Westford	1
Wilmington	1
Wilmington	1
Woburn	3
Nantucket	**1**
Nantucket	1
Norfolk	**23**
Canton	3
Dedham	1
Holbrook	2
Medway	1
Quincy	4
Randolph	5
Sharon	1
Stoughton	2
Walpole	3
Weymouth	1

County	# of Burns
Plymouth	**12**
Bridgewater	1
Brockton	4
Duxbury	1
Halifax	1
Hanover	1
Hanson	1
Lakeville	1
Marshfield	1
Rockland	1
Suffolk	**43**
Boston	38
Chelsea	3
Revere	2
Worcester	**20**
Ashburnham	1
Blackstone	1
Clinton	2
Gardner	1
Leominster	4
Millbury	1
North Brookfield	1
Northbridge	1
Upton	1
Uxbridge	2
Westborough	1
Winchendon	1
Worcester	3

Causes of Work-Related Burns

Cause	# of Burns	% of Total
Explosion	**14**	**29%**
Propane	4	8%
Ignitable Liquids	2	4%
Unspecified	2	4%
Car Part	1	2%
Electrical	1	2%
Flashburn	1	2%
Gasoline	1	2%
Cigarette Lighter	1	2%
Welding	1	2%
Scalds	**13**	**27%**
Cooking Liquids	6	12%
Steam	3	6%
Beverages	1	2%
Contact	1	2%
Cooking Grease	1	2%
Hot Tap Water	1	2%
Electrical	**8**	**16%**
Explosion	3	6%
Electrocution	2	4%
Unspecified	2	4%
Flashburn	1	2%

Cause	# of Burns	% of Total
Other	**8**	**16%**
Chemical	8	16%
Flame	**5**	**10%**
Aerosol Can	1	2%
Cooking/Clothes Ign.	1	2%
Gasoline	1	2%
Oven	1	2%
Propane	1	2%
Fire	**1**	**2%**
Fire/Not Specified	1	2%
Flammable Gas	*1*	*2%*